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FORTY-THIRD ANNUAL REPORT

67010

OF THE

INDIANA

State Board of Agriculture.

VOLUME XXXV--1893-1894.

Including the Proceedings of the Annual Meeting, 1894; Reports of
County and District Societies, State Meetings of Short-Horn Cattle
Breeders, Dairy Association, Swine Breeders, Wool Growers,
Poultry Association, Bee Keepers, Farmers' Institute,
Farmers' Reading Circle, Statistics on Vegetables and
Cereals, and Table of Commercial Fertilizers.

TO THE GOVERNOR.

INDIANAPOLIS:
WM. B. BURFORD, CONTRACTOR FOR STATE PRINTING AND BINDING.
1894.

THE STATE OF INDIANA,
EXECUTIVE DEPARTMENT,
INDIANAPOLIS, June 28, 1894.

Received by the Governor, examined and referred to the Auditor of State for verification of the financial statement.

OFFICE OF AUDITOR OF STATE,
INDIANAPOLIS, June 28, 1894.

The within report, so far as the same relates to moneys drawn from the State Treasury, has been examined and found correct.

J. O. HENDERSON,
Auditor of State.

INDIANAPOLIS, June 28, 1894.

Returned by the Auditor of State, with above certificate, and transmitted to Secretary of State for publication, upon the order of the Board of Commissioners of Public Printing and Binding.

MYRON D. KING,
Private Secretary.

Filed in the office of the Secretary of State of the State of Indiana, June 28, 1894.

W. R. MYERS,
Secretary of Stat

Received the within report and delivered to the printer June 28, 1894.

CHRIS. H. STEIN,
Clerk Printing Bureau.

MEMBERS

OF THE

Indiana State Board of Agriculture,

—1893—

1st District—ROBERT MITCHELL, Princeton, Gibson County.
2d District—JAS. S. McCOY, Monroe City, Knox County.
3d District—J. Q. A. SIEG, Corydon, Harrison County.
4th District—S. W. DUNGAN, Franklin, Johnson County.
5th District—V. K. OFFICER, Volga, Jefferson County.
6th District—W. W. HAMILTON, Greensburg, Decatur County.
7th District—H. B. HOWLAND, Howland, Marion County.
8th District—CHARLES DOWNING, Greenfield, Hancock County.
9th District—JAS. M. SANKEY, Terre Haute, Vigo County.
10th District—J. N. DAVIDSON, Whitesville, Montgomery County.
11th District—M. S. CLAYPOOL, Muncie, Delaware County.
12th District—M. A. McDONALD, West Lebanon, Warren County.
13th District—W. A. MAZE, Sharpsville, Tipton County.
14th District—C. B. HARRIS, Goshen, Elkhart County.
15th District—W. A. BANKS, Laporte, Laporte County.
16th District—R. M. LOCKHART, Waterloo, Dekalb County.

OFFICERS FOR 1893.

V. K. OFFICER, *President.*

W. W. HAMILTON,
Vice-President.

E. H. PEED,
General Superintendent.

CHAS. F. KENNEDY,
Secretary.

JAS. A. WILDMAN,
Treasurer.

Executive Committee.

MESSRS. SIEG, HOWLAND, DAVIDSON AND HARRIS.

A TABLE *Showing the Officers, Place and Premiums Paid of Each Fair Held by the State Board of Agriculture.*

Year.	PRESIDENT.	SECRETARY.	TREASURER.	GENERAL SUPERINTENDENT.	PLACE OF FAIR.	PREMIUMS PAID.
1852	Gov. Joseph A. Wright	John B. Dillon	Royal Mayhew	W. T. Dennis	Indianapolis	......
1853	Gov. Joseph A. Wright	John B. Dillon	Royal Mayhew	J. J. Bingham	Lafayette	......
1854	Gov. Joseph A. Wright	Wm. T. Dennis	Royal Mayhew	W. T. Dennis	Madison	......
1855	Gen. Joseph Orr	John B. Dillon	S. A. Buell	Calvin Fletcher, Jr	Indianapolis	$2 753 00
1856	Dr A. C. Stevenson	Ignatius Brown	S. A. Buell	Calvin Fletcher, Jr	Indianapolis	4,225 00
1857	Dr. A. C. Stevenson	Ignatius Brown	S. A. Buell	Calvin Fletcher, Jr	Indianapolis	4,127 00
1858	Dr. A. C. Stevenson	John B. Dillon	Thomas H. Sharp	Calvin Fletcher, Jr	Indianapolis	......
1859	George D. Wagner	John B. Dillon	Thomas H. Sharp	James L. Bradley	New Albany	6,163 00
1860	George D. Wagner	Wm. T. Dennis	Thomas H. Sharp	James L. Bradley	Indianapolis	3,827 09
1861	D. P. Holloway	Wm. T. Dennis	H. A. Fletcher	......	No Fair.	...
1862	James D. Williams	W. H. Loomis	H. A. Fletcher	J. A. Grosvenor	Indianapolis	3,994 00
1863	A. D. Hamrick	W. H. Loomis	H. A. Fletcher	J. A. Grosvenor	Indianapolis	......
1864	Stearns Fisher	W. H. Loomis	Francis King	W. H Loomis	Indianapolis	4,121 00
1865	Stearns Fisher	W. H. Loomis	Carlos Dickson	J. A. Grosvener	Fort Wayne	4,078 00
1866	Stearns Fisher	W. H. Loomis	Carlos Dickson	J. A. Grosvenor	Indianapolis	..
1867	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Terre Haute	6,331 00
1868	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Indianapolis	7,087 00
1869	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Indianapolis	7,517 00
1870	J. D. Williams	Joseph Poole	Carlos Dickson	J. S. Benson	Indianapolis	7.914 00
1871	J. D. Williams	Joseph Poole	Carlos Dickson	Jacob Mutz	Indianapolis	8,564 00
1872	John Sutherland	Alex. Herron	Carlos Dickson	H. W. Caldwell	Indianapolis	9.619 20
1873	John Sutherland	Alex. Herron	Carlos Dickson	H. W. Caldwell	Indianapolis	8.864 75
1874	John Sutherland	Alex. Herron	Carlos Dickson	E. J. Howland	Indianapolis	10,754 00
1875	William Crim	Alex. Herron	Carlos Dickson	E. J. Howland	Indianapolis	12,068 20
1876	Hezekiah Caldwell	Alex. Herron	Carlos Dickson	J. L. Hanna	Indianapolis	8,179 30
1877	Jacob Mutz	Alex. Herron	Carlos Dickson	J. W. Furnas	Indianapolis	6,337 95
1878	W. B. Seward	Alex. Herron	Carlos Dickson	R. M. Lockhart	Indianapolis	5,057 00
1879	Robert Mitchell	Alex. Herron	Carlos Dickson	R. M. Lockhart	Indianapolis	5,472 00
1880	W. H. Ragan	Alex. Herron	J. A. Wildman	Fielding Beeler	Indianapolis	6.553 00
1881	R. M. Lockhart	Alex. Herron	J. A. Wildman	Fielding Beeler	Indianapolis	6.855 50
1882	H. C. Meredith	Alex. Herron	J. A. Wildman	Fielding Beeler	Indianapolis	8,096 00
1883	Robert Mitchell	Alex. Herron	J. A. Wildman	Fielding Beeler	Indianapolis	9,581 13
1884	Robert Mitchell	Alex. Herron	S. Johnson	Fielding Beeler	Indianapolis	10,414 30
1885	R. M. Lockhart	Alex. Herron	S. Johnson	Fielding Beeler	Indianapolis	9.000 50
1886	W. B. Seward	Alex. Herron	S. Johnson	H. B. Stout	Indianapolis	9.419 00
1887	W. B. Seward	Alex. Herron	S. Johnson	Chas. E. Merrifield	Indianapolis	9.726 50
1888	J. N. Davidson	Alex. Herron	S. Johnson	R. M. Lockhart	Indianapolis	9,917 50
1889	J. N. Davidson	Alex. Herron	S. Johnson	C. E. Merrifield	Indianapolis	10,200 00
1890	W. A. Banks	Alex. Herron	S. Johnson	C. E. Merrifield	Indianapolis	13,040 50
1891	W. A. Banks	Leon T. Bagley	S. Johnson	C. E. Merrifield	Indianapolis	15.297 00
1892	J. M. Boggs	Leon T. Bagley	S. Johnson	E. H. Peed	Indianapolis	19,876 00
1893	V. K. Officer	Chas. F. Kennedy	Jas. A. Wildman	E. H. Peed	Indianapolis	18,407 50
1894	J. M. Sanky	Chas. F. Kennedy	E. J. Robison	E. H. Peed	Indianapolis	......

State Industrial Associations.

OFFICERS FOR THE YEAR 1894.

The Indiana State Board of Agriculture.—President, Hon. Jas. M. Sankey, Terre Haute, Vigo County; Secretary, Chas. F. Kennedy, Indianapolis.

Indiana Horticultural Association.—President, C. M. Hobbs, Bridgeport; Secretary, W. H. Ragan, Greencastle.

Indiana Shorthorn Breeders' Association.—President, J. A. Cotton, Manilla, Rush County, Secretary and Treasurer, Will S. Robbins, Horace, Decatur County.

Indiana Dairyman's Association.—President, Bartlett Woods, of Lake County; Secretary and Treasurer, W. S. Commons, Centreville, Wayne County.

Indiana Wool Growers' Association.—President, John L. Tomlinson, Fairland; Secretary, W. W. Robe, Greencastle.

Indiana Swine Breeders' Association.—President, Thomas Mints, Mohawk, Ind.; Secretary, Scott Barnett, Logansport, Ind.

Indiana Poultry Breeders' Association.—President, Sid Conger, Flat Rock, Shelby County; Secretary, W. H. Fry, Indianapolis.

Indiana Bee-Keepers' Association.—President, Walter S. Pouder, Indianapolis; Secretary, E. S. Pope.

Farmers' Reading Circle.—President, H. S. K. Bartholomew, Middlebury, Ind.; Secretary, W. H. Elson, Indianapolis.

THE INDIANA

STATE BOARD OF AGRICULTURE.

ORGANIZATION OF THE BOARD FOR YEAR 1893.

THURSDAY, January 5, 1893.

Immediately upon the final adjournment of the State Board of Agriculture for the year 1892, the new Board proceeded to organize by calling W. W. Hamilton of the Sixth District to the chair as temporary chairman. The roll-call of the members showed all members present.

On motion of Mr. Howland the Board proceeded to the election of officers, which resulted as follows:

President—V. K. Officer, of the Fifth District.
Vice-President—W. W. Hamilton, of the Sixth District.
Secretary—Chas. F. Kennedy, of Rush County.
Treasurer—James A. Wildman, of Marion County.
General Superintendent—Evan H. Peed, of Henry County.
Executive Committee—Hiram B. Howland, John Q. A. Sieg, Jasper N. Davidson and Chas. B. Harris.

The temporary chairman immediately vacated the chair and the newly elected president was by a duly appointed committee escorted to his official position.

THE INDIANA STATE BOARD OF AGRICULTURE. A RESUME OF ITS WORK FOR 1893.

STATE BOARD MEETING.

JANUARY 5, 1893.

On motion of J. N. Davidson, Hon. James N. Sankey was nominated to fill the vacancy occurring in the State Sanitary Commission. There being no opposing candidate, Mr. Sankey received the full vote of the Board and was duly elected a member of the State Sanitary Commission for the ensuing term.

The newly elected Secretary rose to a question of personal privilege and asked to be informed as to the amount of bond he would be required to give as Secretary of the Board. It having been the custom of the Board to not require a bond, on motion of Mr. Downing, the Secretary was asked to give bond in the sum of $10,000 and the Treasurer's bond was fixed at $100,000.

A special finance committee, consisting of Messrs. Banks, Davidson and the President and Treasurer of the Board, was created and given power to negotiate the sale of a certain note of face value $91,700, and required to report to the Board at its next meeting.

On motion of Mr. Davidson, the Board adjourned to meet February 7, 1893.

STATE BOARD MEETING.

FEBRUARY 7, 1893.

Pursuant to adjournment on the 5th day of January, the State Board of Agriculture met at their rooms on the above date. Hon. V. K. Officer presided, all members being present except Mr. McDonald.

Mr. Downing submitted the following resolution and moved its adoption, which motion prevailed.

Resolved, That the Secretary and Treasurer of this Board be required to prepare and submit to the Board a succinct and detailed statement in writing of all the receipts and expenditures accompanied by vouchers and bills of account as allowed by this Board from the date of the sale of the old fair grounds up to this time, and also a statement showing the assets of the Board and an inventory of all property and effects belonging to the State Board of Agriculture, together with a detailed statement of the liabilities of said Board of every kind and description.

After allowing claims and disposing of communications, the motion of Mr. Maze, that the Board hold the fair during the period from the 18th to the 22d of September, 1893, prevailed; all members present voted in favor of the motion except Mr. Sankey, who voted nay.

The request of the Indiana Horse Breeders' Association, that the Indiana State Board of Agriculture should offer stakes for colts and young horses at their forthcoming fair, which stakes should be denominated the stakes of the Indiana Horse Breeders' Association, was granted.

The outgoing Treasurer, Mr. Sylvester Johnson, filed his report for the period intervening January 1st to February 7th, which report was placed on file, the bond of the new Treasurer approved, and given possession of the finances of the Board.

Upon motion of Mr. Banks, the Indianapolis Driving Club were given the use of the grounds during the first week of September, 1893, for the purpose of holding their fall speed meeting.

The motion of Mr. Downing, that the Secretary, Treasurer and General Superintendent shall, in their annual reports, make a detailed statement of all receipts and expenditures, specifically stating from whom moneys are received, and on what account, and to whom paid out, together with a statement of outstanding orders, also statement showing the assets and liabilities, and such other information as the Board shall require, and that the General Superintendent shall make an inventory of all bills and other personal property belonging to the Board.

Carried.

Board adjourned.

FEBRUARY 8, 1893.

On motion of Mr. Sieg, that a committee of three, one of which shall be the President of the Board, to submit a redistricting of the State in order that the various counties might be of more convenient access by rail, and that committee report to the meeting in September, prevailed.

The President of the Board submitted his list of appointments of Superintendents of departments as follows:

Speed—H. B. Howland.
Light Harness, Coach and Hackney Horses—W. A. Banks.
Heavy Draft and Cleveland Bay Horses—M. S. Claypool.
Jacks and Mules—W. W. Hamilton.
Beef Cattle—J. M. Sankey.
Dairy Cattle and Dairy Products—C. B. Harris.
Swine—W. A. Maze.
Sheep—S. W. Dungan.
Stalls and Forage—M. A. McDonald.
Farm and Garden Products—Charles Downing.
Poultry—James S. McCoy.
Horticultural—J. N. Davidson.
Mechanical—R. M. Lockhart.
The Woman's Department—R. A. Mitchell.
Gates—J. Q. A. Sieg.
Grand Stand=W. W. Hamilton.

The motion of Mr. Harris, that the gates be closed to all except exhibitors till Monday, the 18th of September, prevailed.

FEBRUARY 9, 1893.

The Board resolved itself into a committee of the whole upon the revision of the premium list, which committee, after completing its work, submitted its report, and upon the adoption of the report by the Board, the Board adjourned, subject to the call of the President.

MEETING OF THE EXECUTIVE BOARD.

FEBRUARY 9, 1893.

V. K. Officer presiding, all members of the Executive Board being present.

On motion of Mr. Howland, the Treasurer was authorized to negotiate a loan by placing as collateral security the bonds owned by the Board.

On motion of Mr. Davidson, that the Secretary be instructed to have all insurance re-written on the general application form, prevailed.

Adjourned, subject to call of the President.

MEETING OF EXECUTIVE COMMITTEE.

March 14, 1893.

V. K. Officer presiding, all members of the committee present.

After allowing the bills presented by the Secretary, the following business was transacted:

The motion of Mr. Sieg, that the suspension of the mare Laura McGreggor for the non-payment of entrance in 2:37 trot during the fair of 1892 be waived and the Secretary of the American Trotting Association be asked to re-instate said mare without cost to the owner, prevailed.

The motion of Mr. Howland, that the Secretary be authorized to employ an attorney and collect money held in the hands of the Secretary of the American Trotting Association belonging to the Blue River Stock Farm, prevailed.

The motion of Mr. Harris, that the request of Prof. Latta, of Purdue University, that papers read before the Farmers' Institutes throughout the State of Indiana be printed in the Annual Report of the Indiana State Board of Agriculture, prevailed.

The motion of Mr. Davidson, that the General Superintendent be instructed to provide offices for the Superintendent of the Mechanical Department and the Poultry, prevailed.

The motion of Mr. Howland, that the General Superintendent be instructed to plant shade trees at such places on the ground as they may be needed, using Carolina poplars, hard maple and gray ash, prevailed.

The General Superintendent was instructed to construct a double gate-way at the west entrance of the grounds, and close up the small gates at the same entrance.

MARCH 15, 1893.

The motion of Mr. Howland, that the General Superintendent be instructed to arrange with John S. Lackey, of Cambridge City for holding a sale on the Fair Grounds, carried.

MEETING OF EXECUTIVE COMMITTEE.

MAY 24, 1893.

Pursuant to call of the President, the Executive Committee of the Indiana State Board of Agriculture convened at the office of the Secretary, V. K. Officer in the chair, all members of the Board present.

After disposing of claims and communications, the following business was transacted:

The Secretary was authorized to change the form of the letter-head, substituting the words "Indiana State Board of Agriculture" for the words "Department of Agriculture of Indiana."

The motion of Mr. Sieg, that the Secretary be instructed to provide such additional books of record as he may need in order to make the methods of book-keeping and record-making conform to his manner of conducting said business, carried.

The motion of Mr. Sieg, that all motions prevailing and all statements and contracts and other papers affecting or referring to the agreement of certain parties who guarantee the building of a tunnel under the L., N. A. & C. Railway, for the purpose of a highway and for the passage of the Citizens' Street Railway, be spread of record, carried.

The motion of Mr. Sieg, that the Indiana Pigeon and Pet Stock Association be given $125 for special exhibit at the Fair, prevailed.

On motion of Mr. Harris, the President appointed the following committee on rates to the Fair:

Committee—Howland, Wildman and Kennedy.

The motion of Mr. Sieg, that $1,500 be appropriated to be used by the Secretary for advertising the Fair of 1893, prevailed.

The committee adjourned to meet on call of the President.

THE EXECUTIVE BOARD MEETING.

AUGUST 2, 1893.

Pursuant to call of the President, the Board met at the office of the Secretary, all members of the committee being present.

The motion of Mr. Sieg, that no expense for soliciting for the fair be created, except through the Secretary of the Board, prevailed.

A committee, consisting of Messrs. Sieg and Officer, was created and given full power to settle with the guarantors for the erection of the tunnel under the L., N., A. & C. railroad, and directed to report to the Board at its September meeting.

On motion of Mr. Sieg, the Superintendent and Secretary were created a special committee on special attractions for the fair of 1893.

Adjourned to meet on call of the President.

MEETING OF THE STATE BOARD AT THE FAIR GROUNDS.

SEPTEMBER 18, 1893.

On the call of the President, the members of the Indiana State Board of Agriculture convened in the reception room of the Administration building, Hon. V. K. Officer presiding. All members of the Board present.

The motion of Mr. Mitchell, that the fair be formally opened at 1 P. M., of that date, prevailed.

The Superintendent of the Mechanical Department reported that some of the buildings for mechanical exhibits were unoccupied by the owners of the said buildings, and asked for instruction as to what he should do with the buildings.

The motion of Mr. Howland, that he should proceed to occupy the buildings in accordance with the leases made with the owners thereof, prevailed.

On motion of Mr. Sankey, Robert Mitchell was excused as Superintendent of the Woman's Department, and this department was placed under the control of J. N. Davidson.

SEPTEMBER 19, 1893.

At the meeting of the Board, Mr. Downing moved that all school children, when accompanied by a teacher, be admitted free, prevailed.

The motion of Mr. Banks, that inmates of all benevolent institutions, when accompanied by attendants, be admitted free, prevailed.

The Superintendent of Gates asked for instructions on the rules governing admittance, and was given full power to control the same for the week of the fair.

SEPTEMBER 20, 1893.

The Board convened at 9 A. M. All members except Mr. Mitchell present.

Mr. Maze, as Superintendent of the Swine Department, submitted the following:

> By virtue of my authority and duty as Superintendent of the Swine Department of this Association, I have expelled and deprived Mr. Thomas Taylor, of Waynesville, Ill., of the right to exhibit here for a period of two years, beginning October 1, 1893, for the following reasons:
>
> *First.* For exhibiting a herd of alleged Essex swine not legally transferred to him of record.
>
> *Second.* Because the swine so exhibited did not, in my judgment, fill the requirements of the claimed breed.
>
> W. A. MAZE,
> *Superintendent.*

On motion of Mr. Claypool the action of the Superintendent in expelling Thomas Taylor was sustained.

SEPTEMBER 22, 1893.

The motion of Mr. Lockhart, that all premiums awarded at the State Fair of 1893 be paid in full as soon as the money can be provided with which to pay the same, prevailed.

The motion of Mr. Banks, that the Treasurer be instructed to sell sufficient bonds, or to negotiate a loan, using the bonds as collateral security, for a sufficient amount to pay all premiums and other debts and demands upon the Board, prevailed.

SEPTEMBER 23, 1893.

On motion of Mr. Sankey, the action of the President in buying furniture and fittings for the reception room in the Administration building, was approved and the Secretary instructed to draw a warrant in amount sufficient to pay for the same, prevailed.

The committee in charge of the settlement with the tunnel guarantors submitted the following report:

> Your committee proposed to the tunnel guarantors that they would give them a receipt in full and exempt them from further claim by the Board on account of the erection of the tunnel under the L., N. A. & C. railroad, upon the payment by them of the sum of $1,500, which proposition the said guarantors accepted, and your committee report that they have received the said sum of $1,500 in cash, notes and credits, and paid the same over to the Secretary of the Board.

On motion of Mr. Banks, the report of the committee was accepted and the committee discharged.

The report of the committee on redistricting the State for agricultural purposes was submitted, and on motion of Mr. Howland, the report was rejected and the committee discharged.

The motion of Mr. Davidson, that all unfinished business be referred to the Executive Committee, carried.

The Board adjourned, subject to the call of the President.

MEETING OF EXECUTIVE BOARD.

November 16, 1893.

Pursuant to call of the President, the members of the Executive Committee of the State Board of Agriculture convened at the office of the Secretary on the above date, V. K. Officer presiding, all members of the committee present.

On motion of Mr. Sieg, the President appointed an Auditing Committee, consisting of Charles Downing, W. A. Maze and M. S. Claypool, with instructions to convene at the office of the Secretary at 1:30 P. M. on the 1st day of January, 1894, and examine the books and reports of the Treasurer and Secretary and render their report to the Delegate State Board of Agriculture.

On motion of Mr. Sieg, the following programme for the annual meeting the first week of January, 1894, was adopted:

PROGRAMME.

9:00 A. M.—Roll-call of counties and districts.
10:00 A. M.—Address by President, Hon. V. K. Officer.
Appointment of Committee on Credentials.
Reports of Secretary, Treasurer, General Superintendent and Department Superintendent.
Report of Auditing Committee.
Recess.
1:30 P. M.—Address by Governor of State, Hon. Claude Matthews.
2:00 P. M.—Address by the Mayor of Indianapolis, Hon. Caleb S. Denny.
2:45 P. M.—Address by Prof. H. A. Huston, of Purdue University.
"The Sugar Beet in Indiana."
4:00 P. M.—Address by Mrs. V. C. Meredith, of Cambridge City, Ind.
"The Mission of the State Fair."

WEDNESDAY, January 3.

9:00 A. M.—Roll-call of delegates.
10:00 A. M.—Nominations for eight members of the State Board.
10:45 A. M.—Address by Mrs. Julia D. Waugh, of Crawfordsville, Ind.
"Farming—Its Sunshine and Shadow."
Recess.
1:30 P. M.—Election of members of Board.
Unfinished business and adjournment.

On motion of Mr. Davidson, the following heading for the programmes to be used at the Delegate State Board meeting in January, was adopted: "Congress of Indiana Industrial Associations." That the President and Secretary of this Board be designated as the executive and corresponding officials of the Board.

On motion of Mr. Howland, the Superintendent of the grounds and the Secretary were made a committee to confer with the Indianapolis Driving Club and adjust differences existing as to claims for rents due to the Driving Club for use of the track by the foot-ball teams of the Indiana universities.

The motion of Mr. Sieg, that the President and Secretary be given power to proceed to open the highway from the intersection of Twenty-sixth Street and Central Avenue in a northwesterly direction to the fair grounds, at the south entrance of the same on Thirtieth Street, carried.

Adjourned to meet on call of the President.

V. K. OFFICER, *President.*

CHAS. F. KENNEDY, *Secretary.*

ANNUAL MEETING, 1894.

JANUARY 2, 1894, 9 A. M.

As provided by law, the Delegate State Board of Agriculture convened in the lecture room of the Indiana State Board of Agriculture, V. K. Officer presiding.

The convention was opened by prayer by Rev. Frank C. Hood, of the East Washington Street Presbyterian Church of Indianapolis.

At the roll-call of members of the Board, the following responded to the call:

First District—Robert A. Mitchell, Princeton, Gibson County.
Second District—Jas. S. McCoy, Monroe City, Knox County.
Fourth District—S. W. Dungan, Franklin, Johnson County.
Fifth District—V. K. Officer, Volga, Jefferson County.
Sixth District—W. W. Hamilton, Greensburg, Decatur County.
Seventh District—H. B. Howland, Howland, Marion County
Eighth District—Charles Downing, Greenfield, Hancock County.
Ninth District—Jas. M. Sankey, Terre Haute, Vigo County.
Tenth District—Jasper N. Davidson, Whitesville, Montgomery County.
Eleventh District—M. S. Claypool, Muncie, Delaware County.
Twelfth District—M. A. McDonald, West Lebanon, Warren County.
Thirteenth District—W. A. Maze, Sharpsville, Tipton County.
Fourteenth District—C. B. Harris, Goshen, Elkhart County.
Fifteenth District—W. A. Banks, Laporte, Laporte County.
Sixteenth District—R. M. Lockhart, Waterloo, Dekalb County.

ROLL OF DELEGATES.

County.	Name of Delegate.	Post Office.
Boone	H. M. Marvin	Rosstown.
Carroll	Charles Buckly	Delphi.
Clinton	Robert Carrick	Frankfort.
Dearborn	Thomas Winegarden	Lawrenceburg.
Decatur	John F. Childs	Greensburg.
Delaware	A. E. Lyman	Muncie.
Elkhart	Philip F. Nye	Goshen.
Fulton	J. A. McClung	Rochester.
Gibson	Robert Mitchell	Princeton.
Grant	John L. Thompson	Gas City.
Hamilton	John P. Davis	Sheridan.
Hancock	Marion Steel	Greenfield.
Henry	Clark Phelps	New Castle.
Jackson	Louis Schnect	Seymour.
Jefferson	J. B Smith	Madison.
Jennings	J. Scott	North Vernon.
Johnson	John Tilson	Franklin.
Knox	J. S. McCoy	Monroe City.
Lake	Matt J. Brown	Hebron.
Laporte	W. A. Banks	Laporte.
Marion	A. C. Shortridge	Irvington.
Monroe	W. P. Dill	Bloomington.
Montgomery	John L. Davis	Crawfordsville.
Noble	J. E. McDonald	Ligonier.
Owen	Wm. M. Franklin	Spencer.
Parke	Jos. Bockway	Rockville.
Pike	W. O. Oliphant	Petersburg.
Putnam	J. C. Bridges	Bainbridge.
Randolph	D. E. Hoffman	Winchester.
Rush	O. M. Smith	Gings.
Shelby	Sid. Conger	Flatrock.
Spencer	J. C. Haines	Rockport.
Steuben	F. McCarthy	Angola.
St. Joseph	M. W. Garman	New Carlisle.
Tippecanoe	W. W. Blackstock	Lafayette.
Tipton	W. A. Maze	Sharpsville.
Vigo	Hugh D. Roquett	Terre Haute.
Wabash	Frank DePuy	Wabash.
Warren	W. A. Judy	W. Lebanon.
Washington	E. D. Williams	Salem.
Wayne	J. A. Scott	Hagerstown.

District Delegates were represented as follows:

DISTRICT.	NAME OF DELEGATE.	POST OFFICE.
Eastern Indiana Agr. Ass'n.	Don. K. Hitchcock	Kendallville.
N. E. Indiana Agr. Ass'n	R. M. Lockhart	Waterloo.
Grange Jubilee Fair Ass'n	R. H. Wood	Wirt.
Henry, Madison and Delaware Fair Ass'n.	E. L. Elliott	Middletown.
Kentland Agr. Ass'n.	David Weldon	Kentland.
Knightstown Fair Ass'n	L. P. Newby	Knightstown.
N. Indiana and S. Michigan Fair Ass'n.	D. W. Place	South Bend.
Switzerland and Ohio Co. Fair Ass'n	Frances M. Miller	E. Enterprise.
Tri-Co. Fair, Warren	I. Good	Warren.
Tri-State Fair	Robert Mitchell	Evansville.
Washington and Clark at Pekin	W. W. Stevens	Salem.
Acton Fair	J. E. McGaughey	Acton.
Fountain, Warren and Vermillion Fair	Oliver Shelby	Covington.
Miami and Fulton Macy	J. A. McClung	Rochester.
Batesville Fair	T. W. W. Sunman	Spades.
Wayne Horticul	J. C. Stevens	Richmond.
Bridgeton Union Fair	B. Sellers	Bridgeton.

At the request of the President, Hon. V. K. Officer, the Vice-President, Hon. W. W. Hamilton, was called to the chair, and the President addressed the delegates as follows:

PRESIDENT'S ADDRESS.

Gentlemen of the State Board and of the Delegate State Board of Agriculture:

A custom that has prevailed since the organization of the Indiana State Board of Agriculture, makes it incumbent upon me as President of the present Board, to address you while here in annual convention assembled. If any shall anticipate that what I shall say will be an effort to entertain, such of my worthy auditors are doomed to disappointment. This I can not hope to do; but if in the experience of a busy year, surrounded by circumstances peculiar to it alone, I can say something, or if from my field of observation I can offer suggestions, that will pilot my successor in office safely through the breakers I, in my voyage have discovered, and that the incoming Board may strengthen the weak points that have this year been disclosed, then my mission will have been fulfilled, and the purposes of this address fully accomplished.

The experience of Fair Managers reveals the fact that every year presents new points to be considered and new dangers to be avoided. While this is true of every year, it is applicable in a superlative degree to the year just closed. The year 1893 was ushered in with bright prospects, and a hopeful outlook for all mankind and for every interest. The farmers of Indiana had just closed a year that had yielded abundantly; the breeders of almost all kinds of live stock felt that they lived in a favored land; the great Columbian Exposition, which was intended to, and did surpass in all respects, all exhibitions of every kind heretofore attempted, was to be opened to the world. Visitors from every nation and from every country on the globe were to visit our neighboring city, and very many expressed their opinion that this was Indiana's opportune time. So imbued with the feeling of unalloyed success were those in attendance at the last Delegate Board meeting, that when Brother W. W. Stevens moved that we hold a fair in 1893, there were very few, if any, dissenting voices. None were prophets enough to see the cloud of financial depression that has for months overhung and continues to overshadow our Nation, and few were strong in the belief that the World's Fair, the National Encampment, and other counteracting influences could effect, to so great extent, the State Fair. The propriety of holding the State Fair in 1893, was once more carefully considered at the meeting of the State Board held in February. After the question was weighed in all of its bearings, and valuable and able counsel had been taken, the sixteen members of the Board, with one exception, felt it their duty to hold the fair. It is justice that I should say that there were none of the opinion that the fair would more than pay its expenses, while others were less sanguine. Notwithstanding this view prevailed, looking to the future welfare of the State Fair, weighing it from the many points of importance, the duty of the Board seemed plain, and the fair was held. That the result was a surprise to all, I presume, is conceded. The reports of the Secretary, Treasurer and Superintendent, which will soon follow, will give you the data which would here be essential were it not for these reports. I have taken some trouble to investigate the general causes that have contributed to the results that have obtained. To do this I have directed a correspondence with the managers of other State and Territorial fairs, and the invariable reply was: "Our fair was a financial failure." These managers differ as to some of the causes, but all agree that the financial depression, the World's Fair, and in some localities, a shortage in crops, have operated to bring disaster to their exhibitions. These apply with equal force to the Indiana State Fair, but to these we must add the depressing effect of the National Encampment, which just two weeks prior to our fair, brought from all points in the State our every year patrons, who could, by coming at that time, secure a lower rate than we were able to offer, and could see and mingle with the old soldiers, and witness scenes that they would never again have the opportunity to behold. To get these to return again, in two weeks, was out of the question, Hence, I assert, that Indiana from her proximity to the World's Fair, and the effect of the National Encampment, was burdened with barriers at least twofold greater than other State fairs.

I believe that to here offer a comparative statement, using the experience of this Board during the centennial year 1876, will place the delegates and others that are interested, in a position to place an estimate upon the work of this Board and of the degree to which the fair of 1893 must be regarded a failure. Consulting the report of the Secretary for the year 1876, I find that the total receipts for the fair were $6,342.90, the expenses $14,669.43, leaving a shortage of $8,326.53. By a comparison I find that the loss of the year 1876 was almost 57 per cent. of the total expenses, while the loss of the past year will not be quite 33 per cent. of the outlay and expense we have undertaken. While the loss is a very large one and is greatly to be deplored, we have the encouragement that this is not the worst year the State Board has experienced, and having long survived this we should now as one man turn our backs upon the past and with confidence in our ability to survive adversity take hold of the work of the new year and recover the lost on the very site where adversity overtook us.

The fair is over, you know the result. It may, however, be interesting for you to know why the Board elected to pay the premiums in full instead of prorating the payment of them. While this rule has been printed for many years it is also true that the Board has never availed itself of its conditions. The precedent thus established has led exhibitors to expect and to depend upon having their winnings paid in full, and when the Board at the fair was confronted with a shortage, with the history of the management of the affairs of the Board before them, and cognizant of the result on future fairs, should they refuse to pay the premiums, they without a dissenting voice elected to pay these premiums in full as soon as the money could be procured through the sale of securities or by negotiating a loan. The delay that has followed, consequent upon our inability to make arrangements for the money, I may say was not anticipated at the close of the fair, but with the premiums paid and the credit of the Board sustained, we feel that we are well prepared to enter upon the work of 1894 with bright prospects and strong assurances of success.

The advice of exhibitors, as well as my observation, leads me to say that the rules and the classification of our premium list should be radically changed. It is also apparent that this can not be efficiently done if only considered the very short time that the Board shall be together for this purpose. I would therefore recommend that the President that shall succeed me will appoint a special committee whose duty it shall be to study the list, compare it with lists of other fairs that our exhibitors patronize, take counsel from exhibitors and others, and then at the meeting of the State Board, to be held not earlier than the 15th of March, present a revised code of rules and new classification which they will recommend for adoption by the Board. I would call especial attention to the fact that the duties of the various superintendents and other officers of the fair be well defined and that the rules should, throughout the entire list, speak so plain that no questions should arise as to their meaning. In this way a deliberate and thoughtful committee can present a list that will meet the approval of most exhibitors, and I believe could become a model for others to adopt.

In conclusion I desire to express my thanks to each member of the Board for the cordial support they have given me in the discharge of my duties as President of the Board.

To the Executive Committee, Secretary, Treasurer and General Superintendent, I am greatly indebted, for the uniform kindness shown me during the past year, and for the ability displayed by each in the administration of the affairs of the Board.

Thanking this assemblage for its respectful attention, I am your most obedient servant.

Vice-President Hamilton. Gentlemen, you have heard the President's address. What is your will to do with it?

Mr. R. M. Lockhart, Dekalb County. As our worthy President has seen fit to make several recommendations, I move you that a committee of three be appointed by the chair to consider the President's address and make a report on the same.

The motion being seconded and carried, the following persons were appointed as such committee:

Charles Downing, Greenfield, Ind.
M. S. Claypool, Muncie, Ind.
Robert Carrick, Clinton, Ind.

President V. K. Officer, resuming the chair, appointed as a Committee on Credentials the following members:

Representing the Board, W. A. Banks and J. M. Sankey.

Representing the Delegate Board, John F. Childs, W. W. Morgan, and Alex. Oliphant.

REPORT OF SECRETARY FOR 1893.

Mr. President and Gentlemen of the Delegate State Board of Agriculture:

As the officer of this Board that is given the place where all matters of import must first be presented, I would feel that I was unworthy of the responsible place that I am honored with if, from my experience of the year 1893, I could not present something for the guidance of the Board and for the deliberation of this worthy assemblage.

The one thing that has impressed me most, is our lack of ability to touch the masses of that class of farmers who have learned to read, and to benefit themselves by the information thus obtained, and thus grow into a more useful existence to those about them who are not disposed to avail themselves of the various sources of information.

The Indiana State Board of Agriculture was created for a specific purpose, and I may here take occasion to remark that, in my judgment, it has been directed with a faithful regard for the qualifications of its charter. I assume that, at the time it came into existence, the purposes for which it was created were sufficient, but, in this age of wisdom and advancement, any one placed in the position that I am can not fail to appreciate our great need of extended facilities. The Government of the United States has at last recognized the rights of the agriculturalist, and we have the Buréau of Agriculture. Very many of the States publish their quarterly or bi-monthly, and sometimes monthly, reports, that treat of every branch of our now varied industries. The information thus disseminated reaches, free of expense, the desk of every citizen of their respective States who shall interest himself enough to have his name placed upon the mailing list. So common are these publications that the public has learned to depend upon the Agricultural Boards of the States as the source of all statistical matter on agriculture, and I can imagine the amazement of my correspondents when I say to them that the Indiana State Board of Agriculture has no facilities for gathering statistics, and respectfully refer them to our Bureau of Statistics, or to our Prof. Huston, of the Experiment Station of Lafayette. I am fully aware that we have not the facilities for conducting this work, and that it can not be accomplished without aid and without special provisions, but I know of no better place and no better time to discuss this matter than at the meeting of the representative agriculturalists of Indiana. If you shall ask me how this can be accomplished, I have views and plans that to me seem plausible, and which are as free as air. I will gladly bear the burden of the work attendant to securing proper recognition; but if you want it, if you want the Indiana State Board of Agriculture to grow in usefulness, you must let yourselves and your neighbors become interested, and let us see if some of the great sums of money that are expended by the State every year can not be used in the interest of the farmer, the stockman, the mechanic and the artist.

Before I shall attempt a financial statement of the affairs of the State Board for 1893, it becomes my duty to take you back to the statements made to the Delegate State Board last year. Before doing this, however, I desire to say that the year then closed, 1892, was the busiest year in the history of the State Board. The purchase and equipment of the grounds, the liquidation of a vast indebtedness and a great variety of duties and labors, doubtless had a tendency to confuse one and cause him to lose sight of some matters that should have been stated at that time. But the statement I desire to direct your attention to is this: Those that were in attendance last year will remember that it was stated that the State Board had purchased eighty acres, improved and equipped it for a fair ground, had paid a stated amount on old claims, etc., and that the Board still had sufficient funds to purchase the remaining 134 acres, be out of debt and have a comfortable balance in the treasury. It did not take many days to develop the fact that this was an error, and that if the Board had paid all outstanding claims and purchased the 134 acres mentioned they would have had a debt of approximately $20,000. This, then, explains why we are still lessors, and prepares you for the statement of the finances of the Board for 1893.

FINANCIAL EXHIBIT.

Total receipts for the year ending January 1, 1893	$119,009 85
Total disbursements for the year ending January 1, 1894	111,062 33

DETAILED STATEMENT OF RECEIPTS.

Amount on hand at last report	$10,646 47	
Amount received from the State	10,000 00	
Amount received from sale of notes	65,357 72	
Amount received from sale of bonds	16,800 00	
Amount received as interest on bonds	1,022 70	
Amount received as cash payment for tunnel	801 75	
Receipts from all sources at fair	13,125 31	
Receipts from rent of grounds and buildings in vacation	647 00	
Receipts for advertising in premium list	194 00	
Receipts from sale of hay and grain	116 00	
Collected from old claims	298 90	
Total		$119,009 85

DETAILED STATEMENT OF EXPENSES.

Members per diem	$2,595 70	
Salaries	3,384 23	
Postage, telegraph and express	280 96	
Printing and stationery	1,208 05	
Advertising	760 67	
Construction and repairs	2,325 88	
Notes and interest	77,672 77	
Insurance	953 53	
Furniture and tools	146 92	
Claims of past years	6,771 93	
Miscellaneous	1,225 98	
Expenses of exhibition	2,967 71	
Premiums	17,768 00	
Balance	947 52	
Total		$119,009 85

STATEMENT OF FAIR.

Receipts.		
Receipts of 50-cent admissions	$4,930 50	
Receipts of 25-cent admissions	815 25	
Receipts of grand stand admissions	1,069 00	
Receipts of railroad admissions	93 50	
Receipts of exhibitors admissions	283 00	
Receipts of special admissions	29 25	
Receipts of speed entries	3,851 00	
Receipts of privileges	1,326 21	
Receipts of stall rent	1,079 00	
Receipts of advertising in premium list	194 00	
Total receipts		$13,170 71
Uncollected Credits.		
Amount uncollected on advertising	$220 00	
Amount stall rent due	142 00	
Total		362 00
Grand total		$13.532 71
Expenses.		
Paid on premiums	$17,768 00	
Paid on expenses of fair	2,967 71	
Paid on postage, telegrams and express	280 96	
Paid on printing	600 00	
Paid on advertising	760 67	
Total		$22,377 34
Unpaid Expenses.		
Amount for premium list	$317 50	
Amount of premiums unpaid	689 50	
Total		1,007 00
Total expenses		$23,384 34
Recapitulation.		
Total expense of fair	$23,384 34	
Total receipts and uncollected credits	13,532 71	
Loss on fair		$9,851 63

PROPERTY SCHEDULE.

Taken January 1, 1894.

Value of 80 acres and improvements	$145,000 00	
Value of improvements on leased land	10,000 00	
24 bonds of face value	12,000 00	
Sprinkling wagon	300 00	
Track leveler	50 00	
4 wheel scrapers	100 00	
15 drag scrapers	15 00	
1 plow	5 00	
2 harrows	20 00	
25 wheelbarrows	50 00	
6,000 chairs	1,500 00	
Pumping engine	260 00	
Furniture in Administration Building	140 00	
Furniture in Woman's Building	25 00	
Show cases	100 00	
Four farmers' boilers	40 00	
Articles not enumerated	50 00	
Notes taken in settlement for tunnel	500 00	
Amount from advertising in list	220 00	
Stall rent not reported	142 00	
Balance in treasury	954 32	
Interest uncollected	360 00	
		$171,831 00
Accounts and claims unpaid		2,193 75
Net property value		$169,637 25

Respectfully submitted by

CHAS. F. KENNEDY,
Secretary.

President. You have heard the report of the Secretary. How will you dispose of it?

W. A. Banks. I move you that the report be received and referred to the Auditing Committee.

The motion was seconded by Mr. Davidson and carried.

President. We will now hear the report of the Treasurer.

Secretary. Before reading the report of Mr. Wildman, the Treasurer, those of you who are members of the Board will recollect that Mr. Wildman did not take possession of his office until the 8th of February, and that Mr. Johnson, the former Treasurer, served in that capacity until that time, during which time there was considerable money passed through the hands of the Secretary and Treasurer of the Board. I will, therefore, precede the report of the present Treasurer by the report of the former Treasurer, Mr. Johnson.

REPORT OF SYLVESTER JOHNSON TO THE STATE BOARD AT ITS MEETING IN FEBRUARY, 1893.—FINAL REPORT.

GENTLEMEN—Since my last report, January 1, 1893, I have received and paid out the following amounts to wit:

Jan.	1.	Balance in treasury	$10,653 27	
"	7.	Received rebate from First National Bank of Peru	357 72	
Feb.	1.	Received from Martindale & Co.	65,000 00	
		Total receipts		$76,010 99
During the same time I have paid on warrants issued by the Secretary and signed by your President, as follows, to wit:				
1892.				
Dec.	12.	Paid Deal & Broner, warrant No. 798	$2 55	
1893.				
Jan.	2.	S. Johnson, Treas., warrant No. 814.	495 43	
"	3.	J. Clyde Power, warrant No. 815	80 00	
"	3.	Geo. Eberhart, warrant No. 816	130 60	
"	3.	Thomas Cummings, warrant No. 817	4 75	
"	3.	M. E. Humphrey, warrant No. 818	13 70	
"	3.	Monroe Waltz, warrant No. 819	36 60	
"	3.	J. C. McCain, warrant No. 820	6 00	
"	3.	A. Lieber & Co., warrant No. 822.	45 00	
"	3.	Thomas J. Morse, warrant No. 823	514 62	
"	3.	Warrant No. 824	1,475 00	
"	3.	Monroe Waltz, warrant No. 825	25 60	
"	3.	Telegraph Company, warrant No. 826.	19 50	
"	5.	W. A. Maze, warrant No. 827	27 90	
"	5.	W. W. Hamilton, warrant No. 828	26 90	
"	5.	J. Q. A. Sieg, warrant No. 829	32 50	
"	5.	Robert Mitchell, warrant No. 830.	31 00	
"	5.	J. S. McCay, warrant No. 831	32 20	
"	5.	J. N. Davidson, warrant No. 832.	22 75	
"	5.	R. M. Lockhart, warrant No. 833.	31 00	
"	5.	W. A. Banks, warrant No. 834	40 55	
"	5.	C. B. Harris, warrant No. 835	33 50	
"	5.	M. S. Claypool, warrant No. 836	6 65	
"	5.	S. W. Dungan, warrant No. 837	26 20	
"	5.	H. B. Howland, warrant No. 838	15 00	
"	5.	J. M. Sankey, warrant No. 839.	29 25	
"	5.	V. K. Officer, warrant No. 840	30 20	
"	5.	J. M. Boggs, warrant No. 841	42 20	
"	5.	L. S. Jones, warrant No. 842.	30 25	
"	5.	E. H. Peed, warrant No. 843.	22 60	

Jan.	6.	Paid S. Johnson, Treas., warrant No. 844.	$8,000 00	
“	6.	W. T. Steel, warrant No. 845.	100 00	
“	6.	Jay G. Voss, warrant No. 846	335 00	
“	9.	H. F. Wood, warrant No. 847	35 00	
“	9.	Lily & Stalnaker, warrant No. 848	4 50	
“	14.	L. T. Bagley, warrant No. 850	76 06	
“	20.	W. A. Banks, warrant No. 851	18 80	
“	20.	V. K. Officer, warrant No. 852	25 20	
“	28.	C. F. Kennedy, warrant No. 853	20 00	
“	28.	V. K. Officer, warrant No. 854	15 20	
Feb.	1.	S. Johnson, Treas., warrant No. 855.	50,089 44	
“	1.	Butler, Snow, etc., warrant No. 856	500 00	
“	1.	S. Johnson, Treas., warrant No. 857.	8,528 00	
“	2.	V. K. Officer, warrant No. 858	31 80	
		Total		$71,109 00
“	7.	To balance in treasury		$4,901 99

All of which is respectfully submitted.

SYLVESTER JOHNSON,
Treasurer.

The financial assets of this Board are composed of the above balance, $4,901.99, and bonds issued by purchasers of old fair grounds, amounting to $30,000.

REPORT OF TREASURER.

Gentlemen of the Delegate State Board and of the State Board of Agriculture of Indiana:

Your Treasurer begs leave to report to you the financial condition of the office for the year ending January 1, 1894:

RECEIPTS.

Received from former Treasurer, Feb. 8, 1893	$4,901 99	
Received from all sources since that date	43,005 66	
Total receipts		$47,907 65

DISBURSEMENTS.

Paid out on orders	$44,517 55	
Balance in treasury	3,390 10	
Total		$47,907 65
Orders issued and not presented for payment	$2,440 25	
Leaving net balance	949 85	
	$3,390 10	

I also hold twenty-four first mortgage bonds of $500 each on Morton Place lots, the face value of which is $12,000, on which is due, January 1, 1894, interest amounting to $360.

Respectfully submitted,
JAMES A. WILDMAN, *Treasurer.*

On motion of J. E. McDonald, the Treasurer's report was referred to the Auditing Committee.

REPORT OF GENERAL SUPERINTENDENT.

E H. PEED, GENERAL SUPERINTENDENT.

To the President and the Delegate Board of Agriculture:

GENTLEMEN—I herewith submit my report for the year 1893, and as you are aware the year has proved somewhat disastrous for holding fairs, and a result consequent, the receipts for privileges were very much less than last year, but by curtailing expenses to a point much below those of the previous years, I am able to show quite a reduction in this matter, and from the experience of the last year have learned that the fair can be operated with a much smaller police force than we have heretofore been using. While the improvements that have been made during the year have not been of a costly character, they have taken much time and are of such variety that they should be detailed in order that their importance could be appreciated. This work in the main consists of setting out shade trees, making drives and walks, leveling and grading the grounds, making necessary changes in the water system, and in many cases completing the work that was in an unfinished condition from last year. This work proceeded under the direction of the Executive Committee, and there is now upon the entire grounds something near five hundred shade trees, exclusive of the forest at the western part of the grounds, the greater portion of which are alive and thrifty, notwithstanding the past summer has been a trying one on trees lately set.

The expense for labor on the grounds for the year, including the preparation for the fair, was $1,337.50.

There will be little of consequence to do on the grounds during the present year except to reset the shade trees that have died. I would recommend that the water tank be painted both inside and outside, also that the Administration and Agricultural buildings be repainted. Other buildings are in good condition.

The Secretary's report will present a detailed account of all receipts and expenditures, also a complete inventory of all property belonging to the Board.

I desire to express my thanks to the Board for its kindness and courtesy always shown to me, and to the Secretary for his many acts of kindness and assistance given, and I would not forget our faithful janitor, Louis Grim, for his valuable services and ever watchful care over the interests of the Board.

On motion, the report of the General Superintendent was referred to the Auditing Committee.

President. The next thing on the programme is the report of the Department Superintendents. Will you hear them read?

Stephen W. Dungan. I move, Mr. President, that the reports be omitted, inasmuch as it has been the habit of the Board for four or five years to omit them.

The motion was seconded.

President. Gentlemen, it has been moved and seconded that the reports of the Department Superintendent be omitted. Are there any remarks?

W. A. Banks. Mr. President, although for several years past, we have followed that policy, I think it is very unwise to continue in doing so. I think the reports of our Superintendents should be read by all means. I hope that motion will not prevail. The reports are short, and I believe they are all ready, and I hope that the Superintendents will be allowed to read them. They will show the workings of our fair a great deal better than any other method we have.

W. W. Hamilton. I indorse Mr. Banks' remarks. These reports are prepared by the delegates from the different counties and districts, and they ought to be heard. If they are brought up here and laid on the table, they are never seen until they appear in the annual report, and very few people ever see them then. If we expect to grow and be benefitted in the future, and especially in the following fair, we ought to have these reports read. The Superintendents of the departments tell us what they have done, and how they have been active in bringing success in their departments, and all this is good for the incoming Superintendents. There is quite an expense getting up these annual reports, and they are sent out to the different societies in the counties. People say: "Yes, I would like to have one," and they put them up in their libraries, and that is the last they see of them. It is a great mistake. There are facts and statistics in these reports that are of great value to the live stock grower and to the farmer, and the reports should be read.

J. N. Davidson. I fear that friend Hamilton has been misled in regard to the extent of the motion. It does not include the reports from the county or district societies, but only the reports made by the Superintendents of the State Fair Board.

W. W. Hamilton. I did misunderstand it. I take back what I said.

J. N. Davidson. Although this is a departure from the practice in several of the last annual meetings, I am heartily in favor of the reports being read as a part of the programme made by the committee.

The motion being put to vote, was lost, and the reading of the reports of the Superintendents was taken up. They are as follows:

REPORT OF SUPERINTENDENT OF SPEED.

H. B. HOWLAND, SUPERINTENDENT.

INDIANAPOLIS, IND., January 2, 1894.

To the Honorable Members of the Delegate Board:

I have the pleasure to report, as Superintendent of the Speed Department, the entire expense connected therewith is two hundred and forty-eight dollars ($248). This includes the pay of the judges, starter and assistants. The Secretary has given a full report of all entries and amounts received therefrom, also the amount of purses paid at the conclusion of each race.

Having been superintendent of this department during my entire term, I feel that I should recommend some few changes, as the horse interest has met with more constant depression in value than perhaps any other. This may be accounted for by either the stringency in the money market or over-production. Extremely large purses are difficult to pay without an equally large number of entries, and much larger gate receipts than were received last year. I would suggest that no conditional entries be received under any circumstances, and that no condition of payment be attached to any of the purses. Make the owner sure that he will receive his money if he wins it, and he will be better able to pay his entrance money both here and elsewhere; thus we will benefit our neighbor as well as ourselves. There have been, also, too many race-tracks and race meetings throughout the State. This will not occur another year, as several have given up all hopes of future meetings.

These meetings have often occurred during the same week within twenty miles of each other, thus working an injury to both. It has caused conditional entries, caused owners to wait till the last minute in order to get the best terms, frequently resulting in free entry and special train, to the injury of the other. I would also suggest the elimination of stake races, as they are very dangerous, and like Chicago margins, are liable to be a disappointment.

Now, as to our own track, whatever may be said about the State Board of Indiana, they have this to their credit: they have erected the finest fair buildings in the United States; they have constructed the best and finest track in the world. This no one can gainsay, as every horse that started over this track, that was driven to win, and won the race, lowered all former records, and we have to our credit the fastest mile in 1893, made over this track in the time of 2:04¼. This, surely, awards to us the prize for this year.

REPORT OF THE HEAVY DRAFT AND CLEVELAND BAY DIVISION OF THE HORSE DEPARTMENT.

M. S. CLAYPOOL, SUPERINTENDENT.

In the department of Heavy Draft and Cleveland Bay horses, we are unable to report for the fair of 1893, as large an exhibit as in former years, nor was the excellence of the exhibit up to that high standard that should be maintained by exhibitors at the State Fair of Indiana. Many things have conspired to detract from the usual exhibit, notably the World's Fair; the season making it difficult to get animals in condition; dullness of the horse market, all have added to and have had a depressing influence upon exhibitors. Many of the classes, however, were well filled, and many animals of individual excellence were shown. Some of the animals deserve and were well worthy of special mention. We are of the opinion that a reclassification of the horse department should be made, with a view more particularly to elimination.

We have to report the number of entries in the various classes as follows:

Class 1.	French Draft	11	entries.
" 2.	Percheron	11	"
" 3.	Clydesdale	28	"
" 4.	English Shire	8	"
" 5.	Belgians	2	"
" 6.	Cleveland Bays	17	"
	Total entries	77	

In the matter of department expenses, we have none to report. The department was taken care of without any expense, except the fixed charges by the Board for the per diem and railroad fare of the Expert Judge, which was $30.15.

LIGHT HARNESS HORSE DEPARTMENT.

W A. BANKS, SUPERINTENDENT.

As Superintendent of the Light Harness Horse Department I would submit that the buildings and equipments being now complete, we have little trouble and no inconvenience in conducting the business of the department, to the complete satisfaction of both judge and exhibitor, and that the facilities for showing expedites the work to such degree that one-half of the time is saved. To make plain just what is meant, I will assert that one competent man can now conduct the work of the entire Horse Department in the same time that two department superintendents, each with an assistant and with the additional help of a riding marshal, could under the arrangement at the old grounds. I will take this opportunity to say that the work of stalling the horses and conducting the entire work of the department was accomplished without the aid of an assistant, except during the short time that was occupied in showing teams and roadsters on the track in front of the grand stand, and that the expense thus incurred was but $6.00 for both horse departments.

It has been argued that it was not possible to get one judge that was competent and that could render satisfaction in all of the classes of the department. This theory, in my experience, has been so completely exploded that I have no hesitency in saying that in Mr. D. S. Ulrich, of Lanier, Ohio, I found a man that not only displayed the ability to judge correctly, but performed the work to the entire satisfaction of all exhibitors. I would therefore recommend that the use of the single judge system be continued, and that men who are competent to judge an entire department be selected, when it is possible.

In the matter of locating stock in the various barns, I would earnestly urge that it is important that the Superintendent of the department have complete control of this work, for the reason that in this way he can become acquainted with his exhibiters early, and can better know where his stock is located when it is wanted for the ring. I would, of course, say that so far as possible, the stock should be classified in the barns, thus affording convenience to exhibitors and the Superintendent, as well as give the public a better opportunity to inspect the exhibit.

The arrangement of the show barns must of necessity bring the interests of the Superintendent of the heavy horses and the Superintendent of the light harness horses very close together if not to a point of conflict. This being the case, it is of the greatest importance to the Superintendent of each that his co-worker be a congenial fellow. It is gratifying to me and I feel it my duty to here say that in Mr. H. S. Claypool I found a man ever ready to oblige, even at the apparent expense of his own interests, and my duties performed under these circumstances became a great pleasure.

The exhibit, while not so large as in some past years, was a very creditable one, and was, in fact, in some respects, a very superior one.

The total entries for the department were 185.

The total expense of the department, $36.00.

All of which is very respectfully submitted.

REPORT OF SUPERINTENDENT OF JACKS AND MULES.

W. W. HAMILTON, SUPERINTENDENT.

In making this, my third annual report of the Department of Jacks, Jennets and Mules, I submit that there were but three jennets and one jack exhibited, and that these were as poor specimens as I have ever seen at a county fair, much less a State fair, where it is expected that the exhibits will be of a superior quality. There were but two mules exhibited, these three years old and over, and were fairly good specimens. They were awarded first and second premiums, $30, which was all the money awarded in the department. I attribute the small exhibit to the very low price for this kind of stock and to the hard times.

EXPENSE OF THE DEPARTMENT.

Expert judge, 1 day, at $5 per day	$5 00
Expert judge, railroad fare	1 40
Total expense	$6 40

REPORT OF CATTLE DEPARTMENT—BEEF BREEDS.

J. M. SANKEY, SUPERINTENDENT.

Mr. President and Gentlemen of the Delegate State Board of Agriculture:

I have the honor to submit the following as my report as Superintendent of the Beef Cattle exhibition, at the Indiana State Fair, held in September, 1893. While there were not as many cattle of the beef breeds on exhibition as there were at the show in previous years, yet we think the quality of those shown were superior to that of those exhibited in former years. Among the exhibitors were three herds that won honors at the great Columbian show, the herds of the Messrs. Robbins, M. A. Judy and J. H. Miller. In my judgment Hoosiers may well, and have a right to feel proud of the achievments of these herds at Chicago, especially in the case of Mr. Robbins' herd, which was proclaimed "victor over all herds of all kinds."

The following is a list of exhibitors, their address and the number exhibited by each:

SHORT-HORNS.

J. G. Robbins & Sons, Horace, Ind.	6	head.
Green Bros., Indianola, Ill.	16	"
T. A. Albin & Son, Vendocia, O.	11	"
C. L Gerlaugh, Osborne, O	10	"
F. Gartin & Sons, Burney, Ind.	10	"

ABERDEEN ANGUS.

M. A. Judy. West Lebanon, Ind.	13	"
D. Bradfute & Sons, Cedarville, O.	12	"

HEREFORDS.

Benj. M. Allen, Greenville, O.	13	"

GALLOWAYS.

Brookside Farm, Ft. Wayne, Ind	15	"
G. W. Gillum, Winchester, Ind	13	"

DEVONS.

W. E. Lewis, Casstown, O.	10	"
D. J. Whitmore, Casstown, O.	15	"

POLLED DURHAMS.

J. H. Miller, Mexico, Ind.	14	
Total	158	

In conclusion I would recommend that the herd prize for beef cattle be largely increased, and that the herd shall consist of one bull two-years-old or over, one cow three-years-old or over, one heifer two-years-old or over, one heifer one-year-old or over, and one heifer calf.

EXPENSE OF DEPARTMENT.

Isaac Ball, expert judge, per diem and mileage	$19 50
David McKay, expert judge, per diem and mileage	3 50
Governor Matthews, expert judge, per diem and mileage	14 00
Joseph Watson, Assistant Superintendent, per diem and mileage	17 75
Total	$54 75

REPORT OF CATTLE DEPARTMENT—DAIRY BREEDS.

C. B. HARRIS, SUPERINTENDENT.

In this department there were one hundred and forty entries, all first-class representatives of their respective breeds. Some of the leading herds of this country, Holstein-Friesan and Ayrshires, were to have been here, and their owners went so far as to write to our Secretary and engage stalls for their herds; these were to come from New York and Vermont. With a desire to show them that their journey to Indiana was appreciated, I went to an extra expense to secure the best men for expert judges that the country affords. We were disappointed at their not coming, but we hope to have them with us at some time in the future.

The Holstein-Friesan were represented by W. H. Lagrange and sons, of Franklin, and G. A. Stanton, of Greenwood, Ind. This class was passed upon by S. N. Wright, of Elgin, Ill., to the satisfaction of all concerned.

The Ayrshires were represented by the herd of J. P. Beatty, of Patalaska, O., and to his credit be it said that there was not an inferior animal in his herd. L. S. Fitch, of Oakwood, Laporte County, Indiana, acted as judge.

The exhibit of Jerseys was said to be the best that has ever been made at a fair in this country, not excepting the World's Fair Columbian Exposition. The herds, both old and young, contained some of the best individuals that the breed possesses, and were exhibited by Col. A. T. Dempsey, of Columbus; O. W. A. Ketchem, of Indianapolis, Ind.; H. H. Wheatcraft, Greenwood, Ind.; Garretson Bros., Pendleton, Ind., and Peter Raab, Brightwood, Ind. Prof. Charles S. Plumb, Director of Purdue University Experiment Station, Lafayette, Ind., passed upon the merits of this breed, and as a judge he has no superior, and his decisions were satisfactorily rendered.

The testing of cows in the dairy breeds for the amount of butter fat that their milk contained was thoroughly done by my assistant, John L. Milburn, a last year's graduate of the short course of live-stock husbandry at Purdue University. He saw the milking done for four consecutive milkings, took every precaution to see that the cows were kept as near as possible in their normal condition. The test was very satisfactorily made, and demonstrated that an accurate test of what a cow is capable of doing in producing butter fat can be made at a fair.

The expense of running the department was as follows:

S. S. Fitch, judge of Ayrshires, per diem and mileage.	$11 80
C. S. Plumb, judge of Jerseys, per diem and mileage	8 90
S. N. Wright, judge of Holstein-Friesans, per diem and mileage	25 28
John L. Milburn, Assistant Superintendent, per diem and mileage	13 10
Total	$59 08

The expense for judges was larger than it would have been had we not received the assurance that other herds would be here. I have done my best to manage the department so as to encourage exhibitors to exhibit with us again.

REPORT OF SWINE DEPARTMENT.

W. A. MAZE, SUPERINTENDENT.

Gentlemen of the Delegate State Board of Agriculture:

As Superintendent of the Swine Department, I have the honor to submit that the swine exhibit of the State Fair for 1893 was much better and finer in quality than usual, but fell far short of the exhibit of 1892 in numbers. There was a noted absence of sale stock in the pens, hence the exhibit. The reason for this, in my opinion, was caused by the financial stringency more than anything else, the exhibitor not wanting to pay for more pens than would accommodate his show stock, left his sale stock at home—the proper place for it. In my opinion, it would be far better for the exhibitor if he would never show his sale stock in comparison with his show stock, since there is most always a marked discrepancy in favor of the latter, and the exhibitor could negotiate better sales by simply showing the best. While this plan is the better one for the exhibitor and for the Fair management, especially in the overflow years, it may not, in every particular, be the better for the purchaser. Exhibitors should never show inferior stock, though if a few scrubs could be placed on exhibition the advancement and improvement in breeding could be better demonstrated. This principle is not only to be applied to the swine, but has its bearing with just as great force in every department of the live stock. Many of the pens were not occupied this year, the number on exhibition this year being 599, while in 1892 there were 1,611 hogs in the pens.

The system of expert judging is, in every respect, successful and satisfactory. The list of awards will be printed in the Statistical Report, and will not be given here. In the management of the department everything passed off without friction, except in one instance, where an exhibitor showed a herd of alleged Essex swine, which bore unmistakable marks that they were a mixed breed of hogs, and, therefore, not entitled to compete for premiums in that class under the rules governing the class. The exhibitor, knowing that the judge would not award him premiums, became unruly, and tried to make it appear that the discrepencies and the "superfluous appendages" were caused by the frost, and when he found that such excuses were not given weight he became angry, and used language unbecoming an exhibitor or a gentleman. I therefore debarred him of the right to make further shows, and expelled him as an exhibitor at the Indiana State Fair for the period of two years from the first of October, 1893, which action was duly reported by me to the Board, and was by them duly ratified.

The number of entries in this department were as follows:

Class No. 32, Berkshire	69
Class No. 33, Poland-China	183
Class No. 34, Chester White and Victories	103
Class No. 35, Essex	77

Class No. 36, Yorkshires	62
Class No. 37, Duroc Jerseys	68
Class No. 38, Suffolk	37
Total entries	599

The Victories on exhibition this year were superior to former exhibits; I would therefore recommend that they be given a separate class in the list for this year.

EXPENSE OF DEPARTMENT.

W. S. Johnson, assistant, 5½ days at $3	$16 50
Calvin Sturdevant, assistant, 1½ days at $3; R. R. fare, $1	5 50
S. C. Rousch, Expert Judge, 3 days at $7; R. R. fare, $5.00	26 00
W. W. Snyder, Expert Judge, 2 days at $7; R. R. fare, $2.60	16 60
Jas. Mustard, Expert Judge, 1½ days at $7	10 50
A. S. Gilmore, sweepstakes, $2	2 00
Total expense	$76 10

REPORT OF SHEEP DEPARTMENT.

S. W. DUNGAN, SUPERINTENDENT.

The sheep show at the recent State Fair exceeded, in numbers, and far surpassed in attractiveness and excellence of quality, any former exhibit. The various breeds were represented as follows: Cotswolds, 93; Fine Wools, 80; Oxfords, 60; Hampshires, 50; Shropshires, 107; Southdowns, 38; Cheviots, 25; Rambouillet, 25, making a grand total of 478 head. Space forbids making mention of the fine exhibits made by enterprising individuals and firms, who not only breed sheep of high excellence, but who spend much time and large sums of money in securing the best specimens of the different breeds from beyond our shores, and we believe that at our late fair four-fifths of the sheep on exhibition were imported. We must be excused, however, from entering into details or particulars, as we can not mention all, and will, therefore, forbear referring to any. Suffice it to say, that the class and flock shows were never excelled at an Indiana State Fair. We were lucky in securing the services of the following gentlemen as Expert Judges: On Long Wools, Mr. T. C. Phelps, of New Castle, Indiana; on Medium Wools, Mr. J. R. Tomlinson, of Fairland, Indiana; on Fine Wools, Mr. Uriah Privatt, of Greensburg, Indiana.

DEPARTMENT EXPENSES.

John Tilson, Assistant Superintendent	$6 00
J. R. Tomlinson, Expert Judge	15 00
T. C. Phelps, Expert Judge	10 00
Uriah Privatt, Expert Judge	7 00
Total expense	$38 00

EXPLANATION BY MR. DUNGAN.

I want to say that we had quite a love feast in the closing up of our department this year, although, of course, things looked somewhat blue. Some of the boys would come around and say: "Gentlemen, we are not going to get any premiums, are we? The premiums are not going to be paid in full, are they?" But I said, "I think so, boys; there is no doubt that you will get your premiums; you may not get them now, but you will certainly get them." Now, I want to say that one cause of that love feast was that we all learned this fall that sheep could appreciate fine music as well as other domestic animals, especially horses. You know it has been the custom at our fairs that our bands play altogether for the horse shows and for the races, and so on, but we were fortunate in getting the boys to come down and play for the sheep. We had some of our finest exhibits on the floor, and we had the boys come and play some three or four pieces, and you have no idea how inspiring that was, not only to the boys who exhibited but to the sheep, and it brought out some fine speeches from my brother Conger and others, and they were all unanimous in the conclusion that they had had rather a better time at Indiana State Fair last fall and had heard more good music than they had ever heard at any State Fair they had attended.

REPORT OF POULTRY DEPARTMENT.

JAMES S. M'COY, SUPERINTENDENT.

In the poultry department there was a grand display. After assigning one wing of the poultry hall to the pet stock, leaving but three wings of the building for poultry, I found it would be necessary to provide more shelter for the poultry, and after procuring a large tent every foot of space was filled to its utmost capacity. In the hall the coops were two deep on each table.

There was a very nice show of pet stock, and this was much admired by visitors. I would suggest that a separate building be provided for this department, and would also recommend that the Poultry Hall be extended at least thirty feet on three of the wings, and that there be sufficient number of coops provided for the poultry likely to show, so that all may be in coops belonging to the building. I would also say that all coops, except those for breeding pens, be built for single birds; then, where they show in pairs, they could show singly and not be cut out on some bad points of the mate. My observation has been that there are very few things properly mated. To better illustrate what I have just said, when birds are shown in pairs, one may be a perfect bird while the mate is disqualified; thus both lose, when if they show singly each will show on its just merit. The poultry exhibit was very fine. I think it the best lot of poultry that I have seen at the State Fair.

I would recommend that the Indian Game be added to the list. The entries in the department were as follows:

Chickens, pairs	519
Chickens, breeding pens	129
Ducks	25
Geese	25
Turkeys	17
Total	715

COST OF DEPARTMENT.

I. N. Barker, Expert Judge	$15 00
T. H. Buck, Assistant Superintendent	7 50
Total	$22 50

DEPARTMENT OF DAIRY AND CREAMERY PRODUCTS AND SUPPLIES.

CHARLES B. HARRIS, SUPERINTENDENT.

A great effort was made by the State Dairy Association to make the exhibition in this department successful. Circulars were gotten out to dairymen and creameries asking them for exhibits of their products. The consequence was that a few responded with exhibits. There are nearly two hundred creameries in the State, equipped with the best of machinery for the manufacture of butter and cheese. There are also about seven hundred thousand cows. Both the creameries and the cows are the property of the citizens of our commonwealth. The citizens, the creameries, the cows and the farms on which they are, represent the dairy industry. This Board has erected a very neat building, in which it was hoped the dairy interest would exhibit their products. The building, and the elegant cold-storage room therein, had proved amply large enough to contain the exhibts heretofore made, and will be large enough for some years to come, unless this Board offers premiums for dairy products commensurate with the capital invested in the business. I suggest that this Board, to encourage this leading agricultural industry, offer at its fall, or 1894, premiums in this department.

As Assistant Superintendent of this department, I appointed H. C. Beckman, Jr., of Brunswick, Lake County, a dairyman and a creameryman of the State, such appointment being made at the request of the State Dairy Association. The expense of running this department was thirty dollars, divided as follows:

Per diem and mileage of Assistant Superintendent	$25 30
George Fulwell, Expert Judge	5 00
Ice	16 00
Total	$46 30

STATEMENT BY MR. HARRIS.

We had 60 pounds of butter in that building that cost us over $20.00. We did not know that the dairymen and creamerymen of Indiana would not show more than 60 pounds. If we had, we would not have iced the box. If we had not iced the box, maybe there would have been a thousand pounds of butter there. We had to ice it in order to have it ready. I had two departments and it was necessary for me to have two assistants, because, with the different breeds of cattle, it was necessary for me to make a milk test, and either myself or assistant had to be there at six o'clock in the evening and stay there until the cows were milked and the milk weighed and tested, and the same thing had to be done for two consecutive days, four consecutive milkings. In the department of dairy supplies it has been customary, for the last two years, to let the State Dairy Association run that department. I have tried to run those two departments for the best interests of the Board and the dairymen of the State, and if they can not appreciate what we have done for them by making their exhibits in that fine building and that fine storage room, why, we can't help it.

REPORT OF FLORAL AND HORTICULTURAL DEPARTMENT.

J. N. DAVIDSON, SUPERINTENDENT.

We are sorry to again report a meager display in this department, owing to the very limited yield of fruit. Last year's short crop of apples was intensified this year by a complete failure, in a very large portion of the country. Grapes, peaches, pears and plumbs fared but little better, consequently our exhibit was anything but satisfactory. This is to be greatly regretted, since two consecutive failures will prove very discouraging to horticulturists. Since past experience has taught us that those who plant fruit trees may enjoy a bountiful supply of fruit, it will be wise on the part of those that have ground to spare to double their efforts in order to succeed in this ennobling pursuit. There appears to be a general apathy in the State Horticultural Society, with reference to making an exhibit at the State Fair, though there can be no more opportune time to display the progress of this association. The cause of this seeming indifference to what seems to be their greatest opportunity, is unknown to the undersigned, and that a closer union between these two associations does not exist, is greatly to be regretted. Many new varieties of fruit should be added to the list, and for a proper arrangement of these additions advice should be sought from experienced fruit-growers and nurserymen. More small premiums should be offered, that the country people may be induced to make exhibits. The quantity required in each exhibit should be well defined. The ubiquituous professional, who never raises a bushel of apples nor a pound of grapes, should be prohibited from making entries, and the burden of the proof should lie with the exhibitor. This would greatly stimulate the small fruit-grower who would no doubt excel those who practice gathering fruit from the fruit-stands of the city and putting it in competition with the practical fruit-grower.

The exhibit of flowers and plants in pots, was very creditable to all concerned. The large space was so occupied that little could have been added. It seems that from some cause the State Florists have a grievance against the State Board, though the cause thereof is unknown. A closer union with this association is desired, and if any differences exist, let them be harmonized. From past experience we recommend that third premium be restored in the premium list for next year on the cut flowers, and that original designs be encouraged. I herewith give a carefully revised classification for the floral department, prepared by a noted florist of the State, and recommend it for the forthcoming list.

EXPENSE OF DEPARTMENT.

E. Y. Teas, assistant, five days at $3	$15 00
E. Y. Teas, railroad fare	50
Henry Michael, Expert Judge, two days, $10; railroad fare, $2.30	12 30
J. W. Ragan, Expert Judge, two days, $10; railroad fare, $1.10	11 10
Total expense	$38 90

The expense of the department for police was a nominal sum for day time, and by an arrangement with an exhibitor to sleep in the building it was nothing at night. The department also turned to the General Superintendent $4, collected for a concession of a business exhibit.

REVISED LIST FOR FLOWERS.

New Rules—All exhibits competing for the same premium must occupy adjoining space. No premium will be awarded to an unworthy exhibit, though there be no competition.

Best 12 Palms.
Best 12 Fancy Calladiums and Alocacies.
Best 25 Ferns and Lycopodiums.
Best 12 Blooming Begonias.
Best 12 Cannas (pot grown).
Best 12 Foliage Begonias.
Best 25 Variegated Show Plants.
Best 12 Blooming Plants (for house culture).
Best 12 Blooming Geraniums (named).
Best 12 Coleus in variety.
Best 2 Vases, Iron, Rustic or Wire.
Best 3 Hanging Baskets.
Best Display and Arrangement of Show Plants.
Best 2 Funeral Designs.
Best 2 Baskets.
Best 2 Vases or Urns, filled.
Best 3 Boquets, one each Bridal, Flat or Casket, Table or Vase.
Best Col. Roses, not less than four varieties, in vases, grown by exhibitor.
Best Col. Cut Flowers, named, grown by exhibitor.
Best Col. Cut Gladiolus.
Best and most original Show Design.
Best Funeral Design, character and details furnished by the Indiana Florists'

CLASS —— AMATEUR.

Best Col. Begonias.
Best Col. Cannas.
Best 3 Hanging Baskets.
Best Col. Geraniums (cut flowers).
Best Col. Verbenas (cut flowers).
Best Col. Gladiolus (cut flowers).
Best Col. Astors, in bloom.
Best Col. Climbing and Trailing Plants.
Best General Col. Plants.
Best Col. Roses (cut flowers).
Best Col. Dahlias (cut flowers).
Best Design (cut flowers).

EXPLANATION BY MR. DAVIDSON.

We have a little industry that is without a father, and it was, in one respect, adopted by myself. From some cause the interest of the bee-keeper has not had a place on the State Board, and year before last it was found in the Superintendency, but with the Superintendent of the Dairy Association. This year I found it was in the Horticultural Hall when I arrived on Monday—two very creditable exhibits from the city or adjoining country; but I paid very little attention to it, from the fact that I thought it belonged to my friend, Colonel Harris. In the afternoon of the day in which this exhibit was to be judged I found that he had turned it over to me. I denied having any knowledge whatever of it, but the gentleman brought the book up and that proved the case, for my name was on the book, and I had to have that matter run through with an expert. Mr. Marshall, my judge in the Floral Department, was up in the exhibit of plants that the bee makes the honey from, and, fortunately, I got him imbued with the idea that he was a good man and could give satisfaction, and he went through it without cost to friend Harris. If he had gone through that department as belonging to the dairy his expenses would have been greatly augmented. I say the bee keepers' exhibit should have a location. It should belong to some department—I don't know what. It seems that it belongs more with the dairy than with the horticultural, unless it is the flowers that the bee makes the honey from. Gentlemen, I thank you.

REPORT OF WOMAN'S DEPARTMENT.

ROBERT MITCHELL, SUPERINTENDENT.

Mr. President and Members of the Delegate Board:

As Superintendent of the Woman's Department, it is very gratifying to be able to state that the department is growing in favor with the ladies of the State, since the State Board has managed the department. The number of entries in all of the

Woman's Department was 2,088, but little short of an average year. The exhibits, as a rule, were above the average in quality. Hereafter, as experience has taught, the art exhibit should be put up by an experienced picture hanger, so that each picture will be in harmony with the other. The practice of allowing each art exhibitor to hang their own exhibit produces a discordant exhibit as a whole, which is not pleasant to the eye, and by making a proper classification, it would very materially assist the Awarding Committee in their work. The distinction between a professional and amateur exhibitor should be better defined. This should be so well defined that the point where the amateur ends and the professional begins should be definitely stated. In the Cullinary Department new show cases should be provided, somewhat higher than those now in use. The other departments were well provided with show cases. The Baldwin exhibit should be taken from where it is and the place occupied with booths, and the Baldwin exhibit placed in one of the corners where it would help to fill a vacancy and become beneficial to the appearance of the Woman's Building. The single judge system was adopted in all of the classes and, as a rule, gave satisfaction, and should be continued.

EXPENSE OF DEPARTMENT.

Maggie Hillibold, Judge	$8 20
Sallie Whitesides, Judge	11 30
Francis M. Haberly, Judge	17 55
Kate Payne, Judge	15 70
M. E. Rucker, Judge	6 50
Belle Carpenter, Assistant	26 60
E. J. Powell, Assistant	22 00
Jennie Mitchell, Assistant	33 50
Julia D. Waugh, Assistant	27 85
Mrs. Blackstock, Assistant	28 85
Mrs. Bunday, Assistant	48 20
Mrs. Chedester, Ex. Manager	22 00
Mrs. Coleman, Secretary	72 50
Total expense	$340 60

REPORT OF GATES.

J. Q. A. SIEG, SUPERINTENDENT.

As Superintendent of Gates, I would respectfully report that I had in my employ, as ticket takers at the Fair of 1893, 14 men. Ten men, 4½ days; 1 man, 4 days, and 2 men, 2 days, at a cost as follows:

55 days, at $3 per day	$165 00
Railroad fare	58 80
Total	$223 80

Comparing this with last year shows a saving in this department of over $100, and, had we known everything, could have been reduced some $20 more. As to the number of tickets taken at the gates you are referred to the Secretary's report, but we would have been glad to have taken in ten times as many. The tickets, as now arranged, are much more satisfactory than heretofore, but I would recommend that hereafter no ticket be issued good for more than one admission each day, and that no ticket be issued good for man and wife or lady, but that each person complimented receive a ticket in his or her own name. With this rule strictly adhered to there will be little friction at the gate.

As to the accommodations at the gates, they are all right at the south or street-car entrance. At the west or Monon entrance, if there was a turnstile or some similar arrangement, one man could do the work better than two, as now arranged. At the north entrance, under any arrangement it will require two men, but I doubt the utility of keeping this gate open. At the east entrance, unless the railroad does more carrying passengers, the two side entrances had as well be closed, and two men can then do the work at this entrance. By following these suggestions the expense at the gates can be reduced almost one-half.

REPORT OF SUPERINTENDENT OF GRAND STAND.

W. W. HAMILTON, SUPERINTENDENT.

In submitting my third annual report as Superintendent of grand stand, I repeat that the grand stand is a model of beauty and of convenience.

I recommend that the admission fee of twenty-five cents be continued, as I experienced little complaint. The arrangement of booths gave me more trouble than anything connected with the grand stand, and I would recommend that the door leading from the basement of the grand stand to the court in front of the building be thrown open to the patrons, and that all outside doors be closed, except the door at the southwest corner of the building, and that a door-keeper be placed at this door, thus preventing any who have not paid from entering either in or beneath the building. I would also take tickets at the gate at the northwest corner of the building that opens into the court, on Thursdays and Fridays only. I would dispense with the east entrance of the building, using the two at the south and the one at the west.

EXPENSE OF BUILDING FOR THE WEEK.

Eight ticket men, 27 days, at $3 per day	$81 00
Ticket men, railroad fare	10 00
One special police, 4 days, at $3 per day	12 00
Special police, railroad fare	1 40
Entrance fees refunded	1 00
Total expense	$105 40

REPORT OF FARM PRODUCTS.

CHARLES DOWNING, SUPERINTENDENT.

This department, considering the very dry season, was fairly well filled. The exhibits were all that could be expected, very fine.

It is my judgment that this department should receive more attention from the Board, as Indiana is practically an agricultural State. We should not be behind our neighboring States in the amount of premiums offered in this department.

When the Board's finances will admit of it, I would recommend that the interior of Agricultural Hall be lined with dressed lumber, that shelving suitable for displaying exhibits be put up, and that during the week of the Fair arrangements be made for keeping the floor well sprinkled.

The expense of this department was, Expert Judge, $16.60.

REPORT OF SUPERINTENDENT OF MECHANICAL DEPARTMENT FOR THE YEARS 1892 AND 1893.

R. M. LOCKHART, SUPERINTENDENT.

To the Members of the State and Delegate Boards:

GENTLEMEN—As Superintendent of the Mechanical Department of the State Fair I beg your indulgence for a short time, to give you a very brief report of this department for the year 1892, as the report prepared by me for that department was lost from the files in some way. Consequently no report from that department will be found in the annual report of 1892. You are no doubt all aware of the fact that in that year the location of the new Fair Grounds was selected and preparations made for the holding of our future State fairs. The Board recognizing the importance of making ample provision for the wants of the manufacturers of farm machinery, wagons, carriages, etc., very wisely set apart for that purpose a large plot of ground in the most conspicuous place that could be had on the entire plant. It was divided into two divisions, marked on the plat as A and B. Each division was subdivided into blocks 40x100 feet, making 18 blocks in each division, or 36 in all.

There was a very strong competition on the part of manufacturers of this and other States, to secure what seemed to them to be the most desirable locations on which to erect buildings in which they could make an annual exhibit of the line of goods they were engaged in manufacturing. The competition, though strong, was carried on with good feeling among the competitors, and the most of the blocks were selected as soon as an opportunity was given to make choice, and a large number of buildings were completed in time for the Fair of 1892. The most elaborate and conspicuous building erected was by the well known Studebaker Brothers Manufacturing Co., of South Bend. But few better buildings can be found on any State fair ground. Among the many other good buildings erected were the following: Bradley & Holton, Aultman Machine Co., Hoosier Drill Co., Oliver Chilled Plow Co., The Plano Harvester Co, Economist Plow Co., Flint, Walling & Co., Avery Planter Co., Raugh & Son, The Parry Cart Co., I. E. Myers & Co., and several other firms.

The exhibit made at the Fair in 1892 has not been excelled at any other State Fair in this State, and it is doubtful if it has ever been beaten by any of our neighboring State fairs.

The number of firms and individuals making exhibits was 203, and after all the ground had been allotted that had been set apart for the location of machinery I had to find other places that could be made available for the purpose. I managed the entire department during the week, making all assignments of space and issuing all the tickets to the exhibitors and their helpers without the assistance of any one. The number of tickets issued with coupons was 780, and 184 single admission tickets for extra help.

The expense of the Mechanical Department for the Fair of 1892 was only my per diem and railroad fair.

As Superintendent of the Mechanical Department, for the State Fair of 1893, I am not able to make so favorable a report as for 1892. Owing to the fact of the World's Fair being held this year, and a great many of the large manufacturing companies of this and other States were exhibiting there, and could not conveniently make an exhibit at the Indiana State Fair. Notwithstanding this fact, we had a very creditable exhibit. The most of the buildings on the grounds were well filled with farm machinery of the latest inventions. The most notable difference was in the line of fine carriages and wagons not on display as in 1892, but in some lines there was an increased display, notably in threshing machines, beach and tile machines, hay presses, farm machines, and the different styles of making fences, gates, etc. There were may inventions shown for the first time. Taking the season into consideration the exhibit was a very creditable one. There were 180 individuals and firms exhibiting with us; to twenty-five of these I sold exhibitors tickets at $1 each, their exhibits not being of the cash value required to admit them free. I also issued to the exhibitors 300 tickets with coupons attached, and about sixty single day tickets. As in 1892, I managed the department without assistance, the cost to the Board being only my per diem and mileage.

All of which is respectfully submitted.

President. Gentlemen, you have now heard all the reports of the Superintendents of the different departments of the Fair Ground. The report of the Auditing Committee is now in order.

Charles Downing, Chairman of the Auditing Committee, submitted the following report:

INDIANAPOLIS, IND., January 2, 1894.

The undersigned committee, appointed to examine the reports and audit the books of the Secretary and Treasurer of the Indiana State Board of Agriculture, would report that we have carefully examined said reports and books and find them in all things correct.

Respectfully,

CHARLES DOWNING,
W. A. MAZE,
M. S. CLAYPOOL,
Auditing Committee for the Year 1894.

On motion of Mr. Lockridge, the report was approved and and the committee discharged.

President. The programme for this forenoon is completed. Is there any further business to be brought before this body at this time?

R. M. Lockhart. Mr. President, all the reports to which we have listened this morning have made some suggestion as to changes needed in departments. I move that immediately on the organization of the new Board to be elected, a committee be appointed by that Board to take up all these reports that have been presented this morning to this delegate convention, and go through them separately and prepare a report to be presented at the February meeting of the next Board to be elected. Unless that is done, when the meeting convenes in February, to prepare a new premium list, many of these important matters will be left over. I think that if the recommendations that have been made could be thoroughly considered by a competent committee it would be the best thing that could be done. Many of these suggestions ought to be carried out, for many reasons. One particularly is, as set forth by many department superintendents, that if these changes are made it will have a tendency to decrease largely the expense from year to year.

The motion of Mr. Lockhart was seconded.

W. W. Hamilton. Mr. President, I want to offer an amendment to that motion. Instead of appointing a committee to look over the reports, which would be quite a labor, I would amend the motion by suggesting that these reports be put in the hands of the superintendents of the various departments who are named before the premium list is revised in order that they may be ready to act. The new superintendents are the men who need these reports

The amendment of Mr. Hamilton was seconded.

President. You have heard the motion made by Mr. Lockhart and amended by Mr. Hamilton. Are there any remarks upon the amendment?

Mr. Lockhart. Mr. Hamilton has struck the very keynote to that which I want to get rid of. I have been on this Board a long time. I know the evil effects of appointing these superintendents in advance. You appoint a man in a certain department and he will study over just what he wants to make his department as he wants it. I think the Board should meet and prepare what premiums are to be given, and after that is done appoint the superintendents to take care of these departments. I know that is the sentiment of a good many of these members, not to appoint these superintendents first, but let the committee investigate, let the reports be presented and acted upon, and then let the Superintendent of this Board appoint the superintendents for the different departments.

President. Gentlemen, the question is on the amendment to the motion of Lockhart. Are there any further remarks?

Mr. Shortridge. I thought Mr. Lockhart's motion was to get these Division Superintendents' reports before the whole Board. I thought that was the whole purpose. I do not understand that Mr. Hamilton's amendment does that. These Division Superintendents have reported in detail and given us a good deal of information. All of them have recommended that changes be made in past usages. These changes will have to be made by the State Board. I understand that his purpose was simply to put this into the hands of a committee that would carefully consider them and report to the Board for its action.

W. W. Hamilton. There is no committee of three or five that you might appoint to look over these reports that would be capable of handling them all. It is presumed that the Chair will appoint superintendents of these sixteen departments that are competent men that are familiar each with his department, and when they come up here and you assign to them each a particular department they are supposed to know, and each has his predecessor's experience in that report, and the whole Board together acts upon it. That is why I ask that the motion be amended.

President. The question is on the amendment to Mr. Lockhart's motion, made by Mr. Hamilton. The motion of Mr. Lockhart was that the reports of these Superintendents be referred to a committee appointed to revise the premium list. Mr. Hamilton moved that that motion be amended so that the reports of the various superintendents should be referred to the Superintendents to be appointed by the incoming Board and be reported to the full Board by the different Superintendents.

Mr. Lockhart. Before taking the vote I want to be understood. I simply wanted to know whether it would be the sense of this Delegate Board that this kind of action should be taken. It is not with any purpose of dictating terms that I make the motion, but only to show an expression.

President. It is just to show what disposition shall be made of these reports.

The vote being taken, the Chair was unable to decide the result and a rising vote was taken, by which the amendment was carried. Vote then being taken on the motion as amended, it was agreed to.

The President read the programme for the afternoon, after which the convention took a recess until 1:30 P. M.

1:30 P. M.

President Officer called the delegates to order and announced that the hour had arrived for an address by Gov. Matthews, and appointed a committee of two to escort His Honor into the presence of the delegates.

Mr. President and Delegates:

In complying with the request of your worthy Secretary, I am here, gentlemen, delegates to the State Board of Agriculture, not to inflict you with a long, prepared speech, for a time for such preparation has not been mine, but I come to briefly express a welcome and the pleasure it gives me, both officially and personally, to meet with you, as I have met with you in the past.

The few words I shall say can not be termed an "address," but briefly expressing a thought or two, out of the usual line of welcome. You come, gentlemen, from all parts of the State to discharge an important trust placed in your hands by those you represent. It is important that you should well perform this duty as concerns yourselves by resolving that they who may be honored by you at this meeting, selected to act in your behalf for the coming year, should be men who can and will earnestly, intelligently and faithfully foster and advance the great interest entrusted to them.

The Indiana State Board of Agriculture, I am proud to say, has long held an honored position in its line of work throughout the entire country, and its aim should be not only to equal the past, but push forward to yet higher attainments of excellence.

To-day you meet when a depression, general in its character, seldom, if ever, equaled in the history of our country, and, in fact, that effects the industrial, commercial and agricultural interests of the world. We are not alone in this, for all the world has been and is feeling its dire results. You find the great interests you represent languishing, and on the whole in an unprofitable condition, with prices for much of your grain and live stock nearly or quite below the cost of production. It has been caused, not through acts of political parties alone, as has frequently been asserted, nor partisan measures too often hurtful in their nature, but from the natural and unalterable laws of trade and business, and in this belief we are borne out in the fact of its wide sweeping reach upon other peoples than our own. The year 1893 will be remembered in history as one of those years that has often come upon our country, of general settlement, balancing of accounts, and sweeping aside temporary, flimsy and dishonest foundations, and establishing the conduct of business upon a healthy, solid and honest basis.

In a country of such wonderful resources as ours, and a people of such intelligence and enterprise, these conditions can not long exist, and we will soon emerge from the gloom into the light of a restored confidence and a normal prosperity.

It is in such times as these you more than ever need careful, conservative, yet positive, men in the control of your Board—men with breadth of aim and resolute energy, who can and will meet the difficulties of the hour.

The closing of the great World's Exposition at Chicago has opened up new and wider fields before you, for it has so educated our people, implanted new desires and aspirations and higher aims than before entertained. While the farmer and stock breeder has no need of feeling ashamed, but have cause to congratulate themselves, over the results of the exhibits at this Fair, yet it is incumbent upon the members of your Board, representing the progressive farmers of the State, to realize that there are and will be changed conditions, and be prepared to meet these demands of higher aspirations, grander hopes and truer standards of merit.

The agriculturist of to-day has become imbued with the spirit of progress that moves the world, and you who represent the one greatest interest of our State—so great that the dependence upon it of all other interests is recognized and admitted—should take the comprehensive view of your work that will embrace not alone the interests of the farmer and live stock breeder, but that of the artist and artisan, the laborer and the manufacturer—the wheels of transportation and the sails of commerce.

The coming farmer is the man whose quiet, earnest, intelligent thought on the farm and at the fireside shall find expression in the world through earnest, noble action. With you, gentlemen, largely rests the sacred duty to assist in finding out, or to blaze the way that leads to these higher plains. I trust your labors may be satisfactory, and you can return to your homes with the proud satisfaction of duties well performed.

I will not consume more of your time. I have an important meeting at one of our institutions that I promised to attend, and I think I will congratulate you upon the fact that there is something to take me out of the way. I thank you, gentlemen.

On motion, a recess of five minutes was taken in order that the delegates might meet with Governor Matthews.

The meeting being again called to order, the President introduced the Hon. Caleb S. Denny, Mayor of the city of Indianapolis, who addressed the convention as follows:

GENTLEMEN OF THE DELEGATE BOARD: It was my pleasure some years ago, on several occasions, to appear before this delegate assembly to say a few words of welcome on behalf of the people of this city, and it would afford me great pleasure this afternoon, being called again to represent the people, to talk to you at some length on questions which, perhaps, interest both the Board and the city, if I had had the opportunity of making such preparation as I should have made for the occasion. But it was altogether uncertain until the last day or two that I could even be here in the city, and I am simply here to make my bow and say a single word without any preparation whatever, and I trust that you will accept this apology for not speaking as I believe your assembly here deserves. I will simply say a few words that occur to me on the instant. Of course, it gets old and tiresome to any one representing the people of a city to simply speak words of welcome to an assemblage of this kind, and I know that the members of the State Board of Agriculture, you gentlemen who are directly associated in the work of the State Fairs, who come here from year to year on these annual occasions, feel just about as much at home in this city of ours as our own people do, and therefore it would seem altogether superfluous and out of place for me to stand here and simply welcome you to the city of Indianapolis.

I remember in 1887, I think it was, that I had the honor of having assigned to me a subject to talk about on the occasion of the meeting of this assembly, across the street in the building on the corner. That subject was "The Mutuality of Interests Between the State Board of Agriculture and the City of Indianapolis." I tried in my way at that time, I remember, to point out some features of mutual interest that I thought it would be well for the members of the State Board and the representatives of the city commercial bodies, as they then existed, to consider together and to try to work in harmony, and it was my unpleasant duty to say at that time that they had not been quite as harmonious as they ought to have been for a few years. So I say, first is unity of feeling and sentiment between the representatives of your Board and of the citizens and commercial interests of this city. I tried at that time to talk for a little while upon that specific topic which had been kindly assigned to me by your Board. Among other things, I tried to show that I believed it would be a good thing for both the State Board; you gentlemen who represented the agricultural interests of the State, and the people of the city to come together between that time and the holding of the fair that fall and try to arrange some special attractions that might be offered either directly by your Board or with the concerted action of the Board and the citizens of Indianapolis at some time or times during the evenings of the State Fair week so as to hold the crowds which come here and go away upon the same day, over at least one or two nights during the week.

It is not necessary for me to repeat here, and I do not remember just all that I tried to put before the Board on that occasion as being the attractions which seemed to me might be introduced, but I want simply at this time, and without elaborating or trying to recall the arguments I made and the statements I considered at that time, to renew that general proposition; that I believe it would be to the very great advantage of the Board, who are interested in making these State Fairs not only attractive to the people of the State, but in making them pay their own way and their own expenses from year to year, if not more; I say I think it would be a matter of considerable importance and interest if there could be brought about some meeting between the representatives of this Board and the commercial bodies, which, I am glad to say, now exists in a stronger form and more of them than did at that time, between this and the time of the holding of your next Fair, so as to see if there can not be some special attractions that have not yet heretofore been introduced into the Fair week by the State Board. I could conceive, though I shall not attempt, as I say, to speak of them now here— I could conceive of a number of things that could be done which would not be expensive, perhaps, at least not more so than the return that would be made by the attraction, and that would command public notice, and keep the crowds here over night at least—perhaps over two or three nights, if the attraction could be made of sufficient interest—instead of bringing them here on the morning train and sending them back in the afternoon. Now, as my observation goes, gentlemen of the Board, it has been, heretofore, the rule that but one big day was looked forward to and was expected—that is, one leading day, and I have never myself been able to understand why it was that there could not be two big days, or three big days, during the five days that this State Fair is held each year. I can not understand why there could not be attractions introduced, even upon the grounds of the State Fair during the day wholly, at least here during the evenings, in connection with what you may do at the grounds, that would make these State Fair occasions interesting at least three out of the five days of the week in which they are held. Now, I have simply thrown this out as a thought which, in the absence of anything better to say here, it might be well for you gentlemen during this session to consider. I have no plan to suggest specially myself by which it might be brought about, but I am here to say, as a representative of the city, that I feel sure every representative body that you gentlemen might invite to meet with you, commercial bodies, representatives of the city proper, would take great pleasure and great delight in meeting with any committee that you gentlemen might select at any time between this and the holding of your State Fair next fall, to take into consideration, to debate and to formulate, if possible, some new attractions outside of the usual attractions that are given at the State Fair grounds by you as a Board, to make this week of the State Fair an attractive one, to bring people here that would otherwise not come at all, and to hold people here for your Fair at least two, if not three days instead of one, as heretofore.

Now, I do not know that I ought to say another word on that subject, or any other, because, as I said to you, I am not here to address you at length. I was only sorry that I could not get here in time to hear the whole of the eloquent address delivered to you by the representative of the State, Governor Matthews, who is more especially and directly connected with and interested in the work of this State Board of Agriculture than myself. But I may be permitted simply to say to you people who came here representing the different interests, particularly you gentlemen who represent the State Board of Agriculture, that you are most welcome to this city on this occasion, as you always will be when you meet here in your capacity representing the agricultural interests of the State; and as a representative of the city, I may say that since the new order of things has been introduced, which I am glad to say, brother Mitchell, I put myself on record in the last address I delivered to this Board, the question of buying more ground and making a first-class mile track instead of the half-mile track which you were preparing to make, and which address you did me the honor to print in your proceedings of that year—I say now, after this new order of things has come about, as I hoped it would at that time, there ought not to be, and I do not believe there will be any misunderstandings, any jars, between the commercial bodies, the business men of the city of Indianapolis, and the State Board of Agriculture, but we will go hand in hand, as I hope, and I will take great pleasure in bringing about, in my weak way, if I can aid in doing so, a genuine, mutual good feeling between the people of this city of all professions and businesses, with you gentlemen who represent the agricultural interests of the State in this State Board, and we will do all we can as a city and as a people to aid you in making a grand success on your new handsome grounds, with your mile race course to attract the fast horses of the country. I know that this good feeling exists and that there will be no occasion in the future for any jars between us at any time. I thank you very kindly for your attention.

An intermission of a few minutes was then taken to allow the delegates the pleasure of meeting the Mayor.

The President, after calling the convention to order, announced the next number on the programme, an address by Prof. H. A. Huston, of Purdue University, on the subject of the "Sugar Beet in Indiana."

SUGAR BEETS.

BY H. A. HUSTON.

For the past six years the Purdue Agricultural Experiment Station has been experimenting with sugar beets, and for the past four years has been co-operating with farmers in various parts of the State who were interested in the subject.

Sugar beet culture requires two sets of conditions—

First. Favorable climatic conditions. The temperature of the summer months has generally been considered the most important feature of the climatic conditions, it being assumed that the sugar beet could only be successfully raised within fifty miles of a line drawn through the points having an average summer temperature of 70° F. While this may be true for countries having a relatively moist climate, experience in various parts of the United States shows that the rainfall is a factor which is so important that it must be considered the controlling factor in States like Indiana, where the mean summer temperature does not vary widely from the required 70°. Sugar beet culture requires about the same spring rainfall as ordinary crops, a medium summer rainfall, and a light rainfall in the latter part of September and through October. A summer rainfall that will make good corn will insure a very good crop of beets. The light rainfall at the end of the summer favors the ripening of the beets and increases the sugar per cent.

Second. Special cultivation, the essentials of which are deep plowing eight inches and sub-soiling six inches more, thus stirring the ground to a depth of fourteen inches and providing a seed bed that will permit the root to make its growth downward and not extend above the level of the ground, and close planting, the rows being 16 to 24 inches apart, according to the richness of the soil. The purpose of this thick planting is to keep down the size of the beet to less than two pounds, as large beets contain relatively less sugar than medium or small-sized beets. The purity of the juice is also higher in the smaller beets which permits more of the sugar to be recovered in the manufacturing process.

So far as the climatic conditions are concerned I believe that Indiana is as favorably situated as Nebraska, where the sugar beet industry is well established. The element which has done the most to prevent marked success during the present year has been the prolonged drought, extending in some parts of the State from May to September. Such a drought is practically fatal to a corn crop. On the Station farm, during the past season, yields of corn ranging from two to 26 bushels per acre were obtained, while in a favorable season about 70 bushels are obtained. On this land we obtained from six to nine tons of sugar beets per acre during the past season. The sugar beet has this advantage over corn; a short crop of corn generally gives corn a low grade, while a short crop of sugar beets due to small beets, as a result of drought, gives beets rich in sugar and with pure juices. While the northern part of the State has rather more favorable conditions of temperature, the southern part has rather better conditions of rainfall.

The Louisiana Sugar Planter gives the average crop of sugar beets for the United States at 9.8 tons per acre. Thus it would seem that in a very unfavorable season we have produced a crop of beets not far below the average.

Last spring the Station furnished free seed to 167 farmers, seed being sent into every county in the State. Most of these parties had requested seed, but in a few cases seed was sent with a request that the farmer would raise beets in order to make up the complete list of counties From these 167 farmers, 25 samples of beets were received, and 21 reported failure either from drought or from insect attacks, while a few did not plant the seed owing to very heavy spring rains. From 121 farmers no reply whatever has been received to the letter sent asking them to report either success or failure.

The yields reported range from 4 to 28 tons per acre, and the percentage of sugar in the juice from 9 to 16. The beets are generally small owing to drought; yet some very good results were obtained in different parts of the State. Thus, Porter County furnished a yield of 21 tons per acre of beets, having an average weight of 33 ounces, containing 13.9 per cent. of sugar in the juice, of 81.9 purity, the soil light sandy; Switzerland County furnished a yield of 28 tons per acre of beets having an average weight of 25 ounces, containing 13.5 per cent. of sugar in the juice, of 82.3 purity; Grant County furnished a yield of 21 tons per acre of beets weighing 9 ounces, containing 14.4 per cent. of sugar in the juice, of 84.7 purity. These will serve as examples of some of the best results obtained. I do not compute averages of the results obtained, as such wide variations in cultivation, soil and rainfall render such averages worthless. Ten believe that judging from this year's experience they can raise beets profitably at four dollars per ton, while twelve think they could not do so under this year's conditions; but most of them think they could do so in a favorable season.

From the results of the past six years' work I believe that sugar beets can be raised at a profit in this State, *if the farmers wish to raise them.* We have tested soil, climate and varieties of beets, long enough to feel reasonably certain on these points. The next thing to determine before factories are erected here for the manufacture of beet sugar, is whether our farmers wish to go into the business of raising beets. The farmers can hardly decide this until they have tried beet raising on plats at least an acre in extent. The deep plowing and subsoiling, and the short distance between the rows, call for special implements. and the thinning of the beets call for more hand-work than is required for ordinary field crops. I understand that arrangements have been completed to raise 100 plats of one acre each during the coming season. If this plan is carried out it will solve the most important question remaining before a decision can be made in regard to erecting beet sugar factories in Indiana. The Experiment Station will be glad to assist further in the work.

During the past season much damage was reported caused by the blister beetle or old fashioned potato-bug. The pest is readily killed by application of ammonium arsenite, as described in Bulletin 43, Purdue Agricultural Experiment Station.

So far as the factory conditions are concerned, Indiana has cheap fuel, pure waters, (an important point in sugar-making), transportation facilities and nearness to large markets, all of which will enable her to compete with other sugar-producing States, if our farmers desire to furnish beets for the factories. This the farmers must decide for themselves. The farmers' experience in other States has been that those who raised five to ten acres of beets did so at a good profit, while those who undertook to raise a larger number of acres, generally lost money. This is said to be due to lack of experience and difficulty of obtaining necessary labor to tend the beets at the proper time. I believe that much benefit to other crops will result from the special treatment of the land required for the beet crop. Sugar-beet culture necessitates crop-rotation and deep stirring of the soil, both of which can not fail to be beneficial to much of our land, now much reduced by shallow plowing and continuous cropping.

DISCUSSION.

Question. In weighing beets by the ton, I wish to ask the Professor whether the tops are taken off?

Answer. The beets are trimmed to the bottom of the sunburned or green portion. Those are the specifications made by the beet factories. That top part is full of potash salts which interferes with the crystalization of sugar. It, however, makes very excellent feed, so that it is in no sense a loss.

Q. How do you preserve those surplus stalks?

A. In the silo.

Q. Can you not avoid growing these green tops by keeping the plants covered with soil?

A. Yes, but the place where the leaves grow on the beet is not valuable. You have to trim it somewhere, but the actual amount is very small, and the factory's rebate on defective trimming is only five per cent. now. Some beets grow naturally high out of the ground, but the standard sugar-beets grow well under ground. Many beets grow so they are still white above where they turn in, that is, where they begin to reduce in size.

Q. Will you state again the cost of a plant for making sugar?

A. A beet sugar factory can be built to make crude sugar for $50,000, I suppose. I question whether that is the most desirable form. The beet sugar factories, now operating in the country, are combined sugar factories and sugar refineries always. They sell nothing but refined sugars. The crude products of the beet sugar manufacture, that is, colored sugar and molasses, are not made for consumption. It has to be refined. It tastes so bad that it can not be used. So that our present factories, which cost from $200,000 to $300,000, are factories combining a very large beet sugar capacity with a large refinery, a double plant. I think, probably, the result of the scheme that we have developed in this State, with our very complete system of railroads, and easy system of transportation, will be the establishment of one beet sugar factory and refinery and some smaller factories around in the neighborhood and have them all managed together.

Q. Where the sugar beets are raised on a large scale, do they require to be pulled by hand, or can they be plowed up?

A. There is a specific sugar beet digger. It has round sides to it and goes along and lifts the beets up a little, and the beet may remain for a week in the ground after being loosened, and then you can just take hold of them and lift them right up. They may remain in the ground without injury. They may be dug by machinery very well. On subsoil land they pull very easily. The loose ground lets go of them quite freely.

Q. If they raise ten tons an acre, and it costs $4 a ton to raise them, what labor do they put on it?

A. That is not what it costs. That is what they are going to get for them. Whether they could make a profit selling at that price is the question I asked. The estimates of the cost of raising beets range from $25 to $50. I think $50 is too high, and I think $25 is too low. But, of course, the local conditions, and kind of ground, determine that to some extent.

Q. I think an important question would be whether or not it would pay to take the beets, say fifty or one hundred miles to the factory. It will be a long time before factories can be established in all parts of the State. What is your idea about that, whether it would pay a man?

A. It takes so little land to run a beet sugar factory that I do not believe a factory could afford to pay transportation charges from a distance. The actual acreage, for example, at Grand Island, was 2,000 acres this year in beets. Some of the California factories, I think, had 3,000 or 4,000 acres tributary to them. But you see those 3,000 or 4,000 acres can all be in one county, practically, and it evidently does pay them to haul them that far. I question whether it would pay to ship them long distances, as they would have to be handled with considerable care, and if delayed on the way they might be subject to a wilting process, which might injure the beet somewhat. It does not take very much land to support a beet factory after it is once up.

A Member. The idea in having Prof. Huston present this subject was to ascertain, from what knowledge he has had, whether it will pay the general farmer in this country to undertake the raising of sugar beets in Indiana. I presume you are all aware of the fact that there is what is termed a sugar syndicate in New York. Perhaps some here have had recent communications from these parties. I have myself, and I undertook to investigate the subject. I have had a little experience. When I was a boy there was quite a stir made in Ohio by parties that wanted to start beet sugar factories, and quite a number of the better farmers in that country took hold of it and undertook to raise sugar beets. My father dedicated a portion of his land to beet culture, but the facilities for manufacture were so insufficient that it proved to be a failure. Now, again, in the State of Wisconsin, I think about twenty years ago, in what is termed Honey Creek Valley, I happened to have two brothers-in-law living in that vicinity, and a large population of Germans came in there who understood the method of manufacturing beet sugar. One of my brothers-in-law went to raising beets, and they put in a factory there. My information from that place is that the cost was in the vicinity of $100,000. My brother-in-law said they raised the beets after the customary method of doing the work in Germany, and they carried the matter along some four or five years. The the result of it was a dead failure, and why? From the simple fact that they could not induce enough men in the country to go to work to raise beets in order to make a satisfactory working of their plant. The question has been asked whether it is going to be possible for us in this State, in a small way, to start small factories in different parts of the country and do a part of the work and have the material prepared and sent to a refinery at some other point. It is possible that sugar beet raising could be very profitable in this State. Now, you gentlemen who are here to-day, no doubt many of you recollect a very able address made two years ago, by Prof. Wiley, on sugar beet raising. I felt considerable interest in the matter. Prof. Wiley said the very best region for raising sugar beets lies in the north part of Indiana; that the largest percentage of sugar can be produced from the beets raised in the neighborhood of Lafayette. I received quite a large amount of seed, sent to me by our worthy Secretary, and I gave it out among our farmers, and I will tell you where I think they made a mistake in raising beets. I watched the thing carefully. Some of our best men took the seed, which was presented to them free, and they planted it and raised crops of beets, many of which weighed five pounds each. We did not understand the culture. It was not taught to us the exact course to take with the beet to secure the saccharine matter. We did not cultivate the soil enough. The bulk of the beet grew up above the surface of the soil, and that, I believe, is worthless. What grows in the air is utterly worthless for the purpose of making sugar. It is that portion of the beet that grows below the earth's surface that is worth anything for sugar. And where you grow a beet three to five pounds in weight it is almost worthless for making sugar. The best are those not more than a pound or a pound and a quarter, not more than a pound and a half at most. Prof. Wiley showed us that here.

Now, to sum it up, I would like very much to see that industry carried out in the State of Indiana, if it can be done. But I believe if our people take hold of it, they must take hold in such a way as to raise a sufficient quantity to justify the building of a plant costing half a million dollars, and prepared to make a complete refined sugar, the finest and best sugar that is made. Unless the sugar can be worked through this process it is unfit for use. We can not use it until it is thoroughly refined, as the Professor has said. I should be glad to see this question agitated, but I would not want to see it agitated through the State of Indiana in sections remote from railroads or remote from factories. I think it would not pay to raise beets 200 or 300 miles from a factory, even in a large way. Factories must be ready before the farmers will undertake it. If it is undertaken, and the ground thoroughly prepared for it, not only deep plowing, but subsoiling, so as to give the beet a chance to grow below instead of above the ground, I think we might successfully raise beets in Indiana.

Prof. Huston. I am very glad the gentleman brought that up. Perhaps he does not know that the man he spoke of in Wisconsin went to Massachusetts, New York, Illinois, Wisconsin and California, and he had the same failure. He made a failure every time he went at it. The man could not run any kind of business, that is all. Now, the fact is, the most successful beet sugar factory in California is a factory that followed a man who made a dead failure of it. The man who made a success of the factory had lost so much money that he had to take the factory and run it so as to get even, and he has got even and got rich out of it. The whole series of beet sugar factories from Maine to California were all practically under one man's management, and when he broke down in one place he went to another place. If he were to take the best beet sugar factory in Germany and undertake to run it, he would fail. He could not run anything. Men are following right up in his wake to-day and are making a success in it. That man had no business to try it. I suppose he managed his business so poorly that farmers would not raise beets for him. The successful factory does not solicit people to take stock. They say when the farmers want to raise beets they are ready to talk to them.

E. B. Smith. The persons in this country who have never tried it will be surprised at the enormous profit. I live in the southern part of the State and I know that we find it an exceedingly good crop. I have ascertained to my own satisfaction that they are very easily raised. All that is necessary is to make the ground rich and deep, as the professor says, and you can raise them as easily as you can raise corn.

Question. I would like to ask the professor what purpose they serve in the way of feed?

Answer. They are rather light in albuminoids, but they are rich in soluble carbo-hydrogen, that is, sugar. They will take the place largely of starchy products, with this advantage, that in the winter while you have plenty of dry feed, these are always green, and they are very excellent material on that account. They are very rich in feeding material and partake of the character of green feed. So far as I have heard of them being used for milk cows they are very desirable feed, increasing the flow of milk and increasing its richness.

Vice-President Hamilton. I now have the pleasure of introducing to you Mrs. V. C. Meredith, of Cambridge City, who is a practical farmer and live stock raiser, cultivating the soil and raising grain in as businesslike a way as any man who is before us to-day.

THE MISSION OF THE STATE FAIR.

BY VIRGINIA C. MEREDITH, OF CAMBRIDGE CITY, IND.

The Statute authorizing the formation of a State Board of Agriculture confers upon the organization unusual and exalted functions.

First. The organization is perpetual, indicating that there would be a perpetual field for its endeavors and advancement.

Second. It is, in a remarkable degree, free from conditions and limitations, thus allowing the enterprise and intelligence of the membership to adopt methods and embrace new work as the development of agriculture and society might render expedient and desirable.

Third. It is made the custodian of the agricultural interests of the State by the provision that the annual report of the Legislature shall be "accompanied by such recommendations as they may deem interesting and useful," presumably conferring upon the Board advisory powers.

Fourth. The Board is empowered to nominate two of the six Trustees of Purdue University, thus participating with the Governor of the State in the control of that very important institution, and the Board should be responsible for the advanced position of the agricultural department of the University.

Fifth. The Board may hold a fair, "fixing the amount of the various premiums offered, embracing every article of science and art, or such portions of them as they may deem expedient or proper, calculated to advance the interests of the people of the State."

Sixth. County Agricultural Societies elect the State Board of Agriculture, and it is found that the Statute in reference to the County Agricultural Societies is definite and explicit, saying, "they may perform such acts as they may deem best calculated to promote agricultural and household manufacturing interests;" "regulate premiums;" "so that it shall be competent for small as well as large farmers to have an opportunity to compete therefor." "And in making awards special reference shall be had to the profits which may accrue or be likely to accrue from the improved mode of raising the crop or of improving the soil or stock, fabrication of articles, with the intention that the premium shall be given for economical modes of improvement."

The State Board of Agriculture must meet the first Tuesday of each year "for the purpose of deliberation and consultation as to the wants, prospects and condition of the agricultural interests throughout the State."

It is obvious that the Statute contemplates that the State Board of Agriculture shall touch the agricultural interests at every possible point, beginning with a definite object in county societies—advancement and economical production—and afterward reaching to the University, mould and direct agricultural education; at the same time with its advisory function with the Legislature it should be intelligent and wise in noting and asking the enactment of legislation friendly to and promotive of the interests of agriculture.

In view of the very pointed language of the statute, the deliberations and consultation of the annual meeting should not be too inclusive; Indiana is to be the beginning and the end—the interests of the people of the State to be the main thought of the meeting.

The Board of Agriculture has reason to be proud of its achievement in organizing the industrial interests of the State, but there is yet a collossal work to accomplish in seeking and classifying the resources of the State.

It is the mission of the State Fair to be the agent through which Indiana may have a museum of fascinating interest. The statute empowers the Board to "receive contributions and donations," and goes farther; it not only authorizes the Governor to select a suitable room in the State House, but directs him to hire a room if necessary, for the reception of these contributions and donations, and gives the Board of Agriculture absolute control of this "room for safe keeping of such minerals, soils, ores, fossils, maps, sketches, etc., as may be collected and made by direction of said Board."

Should not the Board be now and constantly directing these collections? Do you recall the taxidermy from Kansas and Minnesota, the particularly intelligent charts from Pennsylvania, at the Columbian Exposition? With an intelligent curator we could have a museum here that would be a credit and a profit to the State, and utilized most advantageously whenever the State is invited to make an exhibition of its resources.

The State Fair itself, in the very ample new grounds, should give an illustration of landscape gardening that would be an impulse felt all over the State. Why not have a model lawn, a model vegetable garden? Why not have model pavements and roads? Why not have a model kitchen, a model barn? Are not these the particular things calculated to advance the "interests of the people of the State"?

There should be an assembly room—association headquarters—where lectures by great men might prove an inspiration to the citizens of the State. The ideal Farmers' Institute might there be held.

The statute is explicit in regard to advancement. A vast amount of information could be disseminated by bulletin boards. Every visitor has deplored the lack of information when standing about the show ring in the Live Stock Department. The Horse Department, however, seems wide awake, and "time" is bulletined very promptly; why should not other information be given in a similar way in other departments? It should be the aim of the Board of Agriculture to encourage *advancement* rather than *competition;* to encourage the announcement of points of excellence as found in the decision of the judge.

May I be permitted upon this occasion to petition the State Board of Agriculture to abolish the so-called Woman's Department? I submit that the efforts of women are not restricted to what is now classified in the Annual Premium List as woman's work, and, indeed, men do very creditable work—perhaps the best work in painting and some other classes which your premium list includes in the Woman's Department. I submit that you have no right to set up the standard of sex. I submit that you should classify according to the article exhibited, without any regard to the mere incident of whether it was produced by a man or a woman.

The Fair lasts but a week; the work of the Board of Agriculture should never cease. Statistics teach us nothing else can. The Board can do a magnificent work in the line of gathering and disseminating statistics; it is already authorized to do so. A perpetual organization charged with encouraging the advancement of the agricultural interests of the State, and charged, moreover, with making that advancement known to the people of the State; its domain is broad and practically unlimited. May we not hope that in the two lines of statistics and a museum we shall see the State Board of Agriculture of Indiana enter upon a new field of endeavor and achievement?

Vice-President Hamilton. I see my superior in the house, and before I retire from the chair I want to say just one word before you are invited to dispose of this matter, and that is that I would take issue with Mrs. Meredith in reference to the Woman's Department, because we know that a woman can do things that a man can not do, and that is why we would like to have a department where he has no business. There is some things that he could not do or manage.

Now, gentlemen, you have heard this able address from a practical farmer, as much so as many gentlemen on this floor, or, I might say, in Indiana. She is of an illustrious family. Her father, her husband, and her husband's father were practical men in their line, and a brother is a member of this Board now. You will now have time to discuss the subject which she has presented.

Mr. Kingsbury. I am not a member of the Board, but I have generally been accorded the privilege of making a remark occasionally at your meeting. There was one point in Mrs. Meredith's address which particularly interested me, and that was her reference to the fact that the State Fair grounds should be made an institute or a place for instruction to the farmers of the State at any time, not only during the State Fair week but for the whole year. Some of you perhaps remember that we discussed that matter in the Indiana Farmer about the time the purchase of this ground was made. I made that suggestion, and put it pretty strongly, on the same line that she made it, that the State Board is charged with the duty of advancing the interests of the farmer and the State in every possible way, and from that we inferred that the fair grounds should be made a means of education to the farmers of the State, and we suggested a model dairy, a model farm garden and model barn; that such improvements be made there and made permanent, and be put in control of some one who should show the farmers around whenever they came whatever time of the year it might be. I was particularly interested in that point in the paper, and I hope that that point will be discussed.

Mr. Mitchell. I want to say a word with regard to two or three points. Mrs. Meredith's paper was very fine indeed. I want still further to impress the idea that Indiana is in the lead of any other State in the Union now. The President of the State Board brought to our headquarters at the World's Fair this map, and they are scattered all over the world. They were the admiration of all. This map is a photograph of the ground as it is now. There is not a State in the Union that has such a ground as we have. It was astonishing to see with what eager eyes the people who did not know anything about our Fair grounds looked at this map. The maps were brought to the World's Fair for distribution, and lots of them were carried away. I simply brought this map here as an illustration of the advance that the State Board has made. The St. Louis grounds, I suppose, are worth a little more money, because it is a larger city than Indianapolis, but they have no such grounds as we have here.

There is another point. I can not concur with the position taken in the paper in regard to the Woman's Building. There is no other State in the Union that has a department of that kind. If the ladies want to take part in showing cattle, grain, or anything of that kind, they are not debarred from that privilege; but that building is a home where the ladies of this State can feel at home. I can not concur in that part of the paper. I think it is a good deal to say that this State has a place the women can call their home. I think that ought to remain as a monument to women in this State. The building is not as good as it ought to be, but perhaps we will have it better. In time we can make that right. I am exceedingly anxious to see that stand, at least for a few years longer, until we see how well it will advance. I do not care to see it taken off the list.

W. A. Seward. Mrs. Meredith has brought out very fully the condition of the State Fair. It has been my privilege for a number of years, at the annual meeting, to try to carry out fully the direction of the law. It says emphatically that we shall meet once a year and consult as to the best interests of the agricultural and mechanical interests of the State. Of late years we have devoted more time to log-rolling and electioneering, seeing who shall be elected for members, than perhaps we ought to have done, and devoted less time to the details of improvement in farming. It is true, there have been organized, in recent years, a number of auxiliary societies—short-horn breeders, swine breeders, and many others, who hold separate meetings, but that does not relieve this Board from the duty of complying with the law. I think we ought to pay a little more attention to it. Now, the State Board of Agriculture has perhaps not accomplished all that it ought, but the value to agriculture in Indiana has been very largely advanced by the diffusion of knowledge that has taken place through the meetings here and through the exhibitions at the various State Fairs. We do not think that we have attained perfection and that there is no further need for such an institution. That would be a great mistake. Competition in every vocation in life has made it necessary for every man to cut closer and plow deeper, and to feed more or less, as the case may be, in order to bring about the best results in agriculture and stock raising. We need more knowledge. Each one who is a successful agriculturist should give his experience in the line of agriculture and stock raising, and let us discuss that. I think that is one of the special missions of this meeting. And then when the Fair comes we can come to it with the products of the State, not for the premiums, not with the idea of simply competing. I think premiums ought to be given, but I think we ought to be public spirited enough to come out and make these shows without the premiums. I have been exhibiting for a great many years in the Manufacturing Department without any hope or expectation of a premium. We abolished premiums in that department a good many years ago, and properly, too. I think the time will come when premiums will be abolished mainly in other departments. The time has not yet come when these large premiums will no longer be offered, but I think I can see that as one of the things that are to come, that we shall become public-spirited enough to make these shows for the purpose of general improvement, and shall exhibit all of the excellence that has been attained in the particular department in which we may be working. But the mission of the State Board of Agriculture has not ended, and the work before it is just as important and as great now as it ever was at any time in its existence.

B. Carroll. I heartily endorse the paper read by Sister Meredith, and all I say is that we, as men, have got to hustle or the ladies of Indiana are going to get ahead of us. They are coming to the front more rapidly than we are, as men, and I want to say that if the ladies of Indiana want that word, "Woman's Building," stricken off, I say take it off. It is their business. When the other buildings were put up we did not go to the ladies and say "What shall we put on these buildings?" but we go to work and give their building that name without consulting them. If the ladies want to change that name let them change it; and if we are not careful they will beat us in the exhibits, too. They will come to the front as farmers. There are ladies of the present day that are more successful than a great many of us that claim to be pretty good farmers. I hope that the ladies will fight that through, and if they want that stricken off, why, it has got to be stricken off.

Mrs. A. M. Noe. I want to endorse fully one or two points of Mrs. Meredith's address in regard to the best roads, the best attractions, and the classification of all exhibits. But that

Woman's Department came here to stay. Quite a good many years ago, I remember, as many of you do, when women's work in our State Fair made a very meagre show. All honor to the State Board of Indiana for being the first one to ever give women the opportunity to form a woman's department and to carry it out as they thought best. It has been a success from the time of the organization of the State Fair Association. And right here I want to say in regard to Mrs. Meredith's idea of a museum that that was one of the thoughts of the Woman's State Fair Association, and they had taken steps for a permanent museum of women's work, and in a few years would have gathered an exhibit creditable to the women of Indiana. I am well aware that women are occupying positions as farmers and in the dairy, and all other places, and in their work in such lines they can compete with the men if they desire to. The presence of the Woman's Building does not hinder them from doing so. But in a separate department for the work of women their work stands out distinctively as theirs. I do not think any of us who visited the World's Fair would by any means have had the Woman's Building away from there with its numerous exhibits of work. And so for Indiana, I am glad of that sign on that building, "Woman's Department." I thank the State Board of Agriculture for its recognition of women in that. What has been the result of the Woman's Department of the State Fair of Indiana? I think that most of the delegates on this floor will bear me out in saying that it has been an incentive to the women in their business; that we have had a better exhibit of work, and since the rule has applied that new work shall be brought in every two years there has been a change all through, better exhibits have been made, women have felt that their work was recognized, and they are demanding, as in other departments, expert judgments. Women are not willing to sit down over an article or paint an article that takes months of time and labor to have it judged by persons who are not experts any more than you gentlemen are willing to have women who know nothing of certain breeds of cattle to judge on them. And so it seems to me that, with due regard to Mrs. Meredith, we ought to be very proud of our Woman's Department in our State and county fairs. They are having them and demanding them in the county fairs as separate and distinct from the other departments. I think we of Indiana need to be proud that in the meetings of the International Convention of State Exposition Managers Indiana was the only State in the Union that had a woman's department exclusively belonging to the women. And so I hope that as our report shows the success of the Woman's Department it may go on, and may be distinctively set apart for women. As Mr. Mitchell says, I am hoping still for more improvements in the building and that every facility may be given. I am with Mr. Seward in that. He was one of the committee who favored a Woman's Department.

Professor Huston. If I may be allowed to speak on this subject, I should like to say that it seems to me Mrs. Meredith is a little misunderstood, from the direction the discussion has taken. I think Mrs. Meredith believes as strongly as any one else in the very great value to the State Fair which has accrued from the work of the ladies connected with it, but it seems to me that there is a very great deal of truth in what she says, in this way: that in making a separate, distinct and exclusive woman's department, a very great deal of first-class woman's work is discredited by being in that place. I do not know much about the department in this State Fair. I have been able to be here but very little, but I am very positive that that was the case in the World's Fair Woman's Department. I know what I am talking about on that, for there was a great deal of first-class work which ought to have been over in the Manufacturers' Building or down in the Anthropological Building—woman's work which, if it had been in its proper place and classified as an exhibit would have reflected enormous credit, while it was rather discredited in the Woman's Building by being covered up by a lot of trivial material. I believe there is danger of doing that in our State Fair. I believe the women's work is as important as any other, but I believe it ought to be in the same classes with the other work. Let the author be fully credited. Let it be marked woman's work if you wish. I do not understand Mrs. Meredith means to take away any provision which the State Board may have made for the social advantages or personal conveniences or anything of that kind, from the grounds, but I think that her idea about putting all the work together, classifying it together, no matter who did the work, if carried out, would add very materially to the value of the State Fair, and that there would be much less danger of woman's work being discredited if it is put out where the work belongs because of the kind of work, and not where it would belong by a classification based upon sex.

Robert A. Mitchell. There was not at the World's Fair a single department in which the women did not exhibit. In the Incubator Building there was one of the most ingenious inventions I ever saw, exhibited by a lady. It was a little invention by which the poultry going in or out of the house would dust themselves to prevent the insect pest. Our State Board was rather in advance of the World's Fair in that particular, because we had a woman's building before they did.

Now, Mrs. Meredith has one idea of which I wish to speak particularly. She wants the State Fair grounds, as far as possible, to be turned into an experiment station. I think this is a good idea, for the reason that the government experiment stations are not what they ought to be. There was not a single experiment station exhibited on the World's Fair grounds but fell far below the standard of the individual exhibits, and the committee on overseers came near passing a resolution to ask the government to discontinue them or make them more efficient. There were some States that refused to allow their experiment stations to be passed upon by the committee. They were so much below the average individual exhibits that they were ashamed to let them go on exhibition. Now, these government experiment stations must do better. That was the universal judgment, not only in one State, but in every State, so that I think the idea of starting an experiment station in the

State Fair grounds in connection with the one at Purdue would make them hustle. I would like to see them hustle a little.

W. W. Hamilton. Professor Huston undertook to explain to us what Mrs. Meredith meant. I would suggest that she is alive and she is here and that she, herself, explain to us what she means by wiping out the Woman's Department.

Mrs. V. C. Meredith. I am thankful for so able an advocate as Professor Huston. He stated my position precisely. You will recall that women's exhibits appeared in all the departments. In the Dairy Department, for example, women really contributed, perhaps, more than men. But you never would think of having two dairy houses and calling one women's work. It was simply judged according to the dairy products and nothing else. Now, I contend that the product which we may call domestic manufacture—we may call it sewing or anything we please—is a very large and important department, and it should not, under any circumstances, be abridged. It should be encouraged, but I object to calling that "Woman's Department," as if women were exclusively concerned with the things in that department. I believe that women contribute to all the departments. I am sure that women exhibit stock. They own horses, they own cows, and they contribute to every department. I think there is great justice in what Professor Huston said about the work of women in the departments at the World's Fair. The fine, the important and the elevating work that women do did not go into that Woman's Building except by samples. In the Anthropological Building I think the finest work belonged to women, and it was not shown as woman's work. In the Fine Arts Building there were splendid paintings painted by women, but nobody said it was a woman's picture; it was simply a picture, and it was to be admired or criticised, condemned or praised, because of its art, and not because a woman painted it. So I think in all these things there should be no division. We want everything carried along just as you have your premium list. Your premium list, I think, is about all right, except that you do not give large enough premiums or enough of them, but nevertheless your classification is in the right direction. I have no desire to say one word that would discourage anybody from contributing to anything, but I do object to calling that "Woman's Department," and I wish to say that I represent myself and nobody else on this occasion. I do not know that the women of the State would at all agree. Mrs. Noe certainly does not agree, and I think her opinion is entitled to great consideration, for she has had much more experience than I have in this line. I want to say, however, that I was connected with the work of the Board of Lady Managers of the World's Fair, and I may say it is the hearty desire of every woman on that Board that there shall never be again a Woman's Building, and never be two Boards, one doing one work and one another, but if the government thinks it worth while to give the women work to do, that they give it along in the line with men. That is what we are contending for. Within the last month the Congress of the United States passed an act, which was approved the 15th of December by the President, saying that there should be diplomas of honorable mention issued to designers, inventors and expert artists, who contributed to the invention and perfection of such exhibits as received medals in the Exposition, whenever one receiving a medal filed with the Board of Lady Managers a certificate setting forth the fact that such person was the designer, inventor or artist. Congress had given us money, Congress had said that merit should be recognized directly. For our government of the United States to directly recognize labor and then give the Board of Lady Managers the execution or administration of that trust is a vindication of the appointment of the Board, and we are proud of it. It shows that the Congress of the United States believed we had ability to do that very important new work. So I think the next time the Congress of the United States wants any work done in which women can take a worthy part, it will appoint them with the men and they will go on one Board, and contribute not as men and women, but as citizens.

R. M. Lockhart. I have been very much pleased with the address of Mrs. Meredith, and when I say to you in advance that I had the honor of serving with her father and with her noted father-in-law and her husband on the State Board of Agriculture, and now at this time with her brother, I say that, I am proud to have been connected with all those people, and when I listen to the suggestions of Mrs. Meredith I give due weight to every one of them. I want to say in regard to the work of the ladies of the State of Indiana that when I first became a member of the State Board of Agriculture we had no separate woman's department. We recognized the work they were doing for us, and some of the members took the ground that the women should be recognized separately. Mrs. Noe, and these ladies present here, know that I was a champion of this cause, and some of our gentlemen friends criticised me very much when I once offered a resolution that the ladies of the State Board of Agriculture that were connected with us should have absolute control of a certain part of the work, and some of them harped upon that word "absolute" —turning the thing over to them absolutely. What was the result of that action? I want to say that I, as a citizen of Indiana, am proud of the great work that was done by the ladies of Indiana in placing our State, as Mrs. Noe has well said, in advance of any other State in the Union in what we term "ladies' work" in fairs. But I agree with Mrs. Meredith that the time has come when the ladies and gentlemen should meet together, and I am willing to accord the ladies their share in this work, for I know they have shown themselves competent in every place where they have been selected to manage. I have no hesitancy in saying that if the ladies want to obliterate that word "Woman's Building" and put anything else in the place of it they should be allowed to have their way about it, for they usually do have their way.

Mrs. V. C. Meredith. I want to add one more word. I want to say I am in favor of men always doing the hard and disagreeable things. The only right I want is to have things easy. That is all that I want. I do not want to do anything the gentlemen are doing, but I like to sit by and criticise what they are doing, and tell them how they ought to do it.

The Committee on President's Address then made the following report, which, on motion, was adopted:

The committee to whom was referred the annual address of Mr. V. K. Officer, President of the Indiana State Board of Agriculture, would respectfully report that the recommendation as to the appointment of a committee to revise and reclassify the premium list, and define the duties of the Superintendents of the several departments, be carried out by the Board. We also recommend the address to the Delegate Board as an able and comprehensive document.

Respectfully submitted,
ROBERT CARRICK, Chairman,
M. S. CLAYPOOL,
CHARLES DOWNING,
Committee.

The convention then adjourned to meet at 9 o'clock to-morrow morning.

WEDNESDAY MORNING.

JANUARY 3, 9 o'clock A. M.

The convention was called to order by the President.

The Secretary read the minutes of the preceding day, and they were approved as read. The roll-call of the delegates proceeded, after which the report of the Committee on Credentials was read by the Secretary.

The Chairman, W. A. Banks, made the following verbal addition to the report:

In regard to some of these associations that did not hold fairs in 1893, and which, according to the law, would not be entitled to vote, wherever we have found a county that did not hold a county fair on account of the World's Fair, we have admitted them, for most of them sent written statements that although they did not hold a fair they are live associations, and any man holding credentials from any association, if he is not a member of that association, and we are apprised of that fact, has been rejected. The law requires that a man must be a member of the association that he represents.

Mr. J. N. Davidson moved that any matters in regard to credentials, about which there is any question, be referred back to the committee, and that delegates having any case to be investigated appear before the committee for that purpose.

The motion was seconded and carried.

Nominations for members of the Board being in order, on motion of Mr. Davidson, speeches in making nominations were limited to three minutes.

The nominations were as follows:

First District—Robert A. Mitchell.
Second District—James S. McCoy.
Third District—Warder W. Stephens, T. S. Getzendenner.
Fourth District—J. W. LaGrange, John Tilson, Hon. W. B. Seward.
Seventh District—H. B. Howland, Carrol Darnell, W. B. Holton.
Fourteenth District—C. B. Harris.
Fifteenth District—D. W. Place, Aaron Jones.
Sixteenth District—R. M. Lockhart, J. E. McDonald.

J. W. Davidson offered the following preamble and resolutions, and moved their adoption:

The motion was seconded and carried.

The resolutions are as follows:

WHEREAS, The elapse of time and the splendid work of the Indiana Experiment Station, promoting knowledge in the varied pursuits of agriculture, have proven the wisdom of Congress in establishing these stations; therefore,

Resolved, That the Delegate and State Board of Agriculture most heartily request that Congress continue its fostering care and promotion of this great work.

Resolved, That copies of this action be sent to the Senators and members of Congress from Indiana.

President Officer introduced Mrs. Julia D. Waugh, of Crawfordsville, and she proceeded to address the convention as follows:

THE TYPICAL FARMER.

"Gone are the tangled woods, the swamps no more breed pestilence, but blossom like the rose. Happiness and health reign, where of yore the hardy settler battled fever foes."

That, coming from the pen of an Indiana man, is easily understood by all who can recall the shake, shiver, shake days, when malaria was king. Tangled woods have thinned their seried ranks for the furrow of the plow. Hordes of mosquitoes and pestilential microbes are seen no more through the telescope of tile.

Health, with rosy pinions, hovers over a State, who pillows her head on the blue waters of a lake, bathes her feet in the muddy Ohio, yields her heart to the center of population and stands at the door to welcome the Orient to our great city of the West.

While Indiana contains not all the farms, and is only one of a great sisterhood, her history is a counterpart of many others. The settlers of the Northwest territory experienced the same toil, hardships and privations, varying only with accidents of location. This State, according to a tradition which boasts a lineage like Topsy, having no father or mother, "just growed," was the center of ignorance, superstition and credulity. While Eggleston and Riley have done much to crystallize the Hoosier type, the fact of their appreciation indicates that responsive chords were touched in the heart of the reading world. The native New Englander, the down east Yankee and the poor whites of the South are only brothers of the old-time Hoosier. Better or worse according to surroundings.

Hoosierdom has thrown off the mantle of odium and stands to-day the peer of any sister. She invites the merchant, the miner, the manufacturer, the quarryman, farmer, scientist and scholar, so varied are her resources. Every interest within her borders has contributed to present worth. Should we seek the one of all others giving most toward the strength of her prowess and the maintenance of her power, Agriculture, with hand on the plow and feet on statistics, demands that farmers sit at the right hand of Progress.

At no time has the farmer occupied the place he does to-day, and at no time have his affairs received so much attention. In every newspaper we find a record of his meetings, councils and conventions. Truly he begins to assert himself, and it may be hoped will soon come to the front in a way highly creditable to the agricultural interests of our country.

The English farmer is a renter or tenant, never an owner; the French the holder of six or eight acres, which we would call a garden. The United States gives it a new meaning, since here the farmer manages and owns hundreds of acres, less than fifty, except near cities, scarcely being called a farm. The makers of our first laws eliminated the chance of an aristocracy from entailed land rights, and moderate holdings are the rule. Political and social equality are the result and account for the present business activity.

Ownership gives an independence to be fostered in no other way. With such conditions, it is time to anticipate the coming of a typical farmer, if, indeed, he does not already exist as a rare specimen. What we may take as the type of to-day will not compare with the ultimate product of this branch of civilization, any more than the typical farmer of 1850 compared with our present lords of domain.

Presuming that he represents the aggregate of characteristic qualities, we ask you to join an excursion to the country and help find what all may accept as an average man, surroundings and family taken as chief evidence. "As the husband, so the wife is." Starting from the county-seat on a fair October day we breathe the subtle something that brings new life after the heat and dust of a long summer. Roads graded and graveled in a way to shame the common street lead rapidly to the Mecca of our purpose. The frost king has painted every bush and tree with colors rich and beautiful. The staid old oak in russet robe spreads protecting arms over the brilliant dogwood. Maples show their scarlet, and green, and gold, with cheerful confidence in a supremacy of beauty. A blue haze envelopes all, blending every tone of nature's paint box into one harmonious picture. We pass the omnipresent wood wagon, driven by a man who makes his forest a legal-tender and an excuse to go to town. Soon we come to a white school-house, set in a shady yard, from whose roof floats the flag we love.

Next comes a farm, well kept as to fence-rows, well stocked and well tilled. It embraces 160 acres, four-fifths under cultivation. The usual variety of cereals are grown and find their way at good prices to a ready market. Conspicuous, and inviting attention to a distant field is a wind-mill, without which the farmer thinks his place a failure. Many fences checker the farm into a labyrinth of pastures, lots and lanes, and, whatever their material, are a blot on the landscape. Hedge surrounds one field, the gaps filled with boards and debris, the gutters with last year's refuse, while part remains untrimmed.

Fat cattle, hogs grunting with satisfaction, horses and colts fill the pastures, while from the woods comes the tinkle of a sheep bell. Anything is good enough for sheep, says their owner, who imagines because they can live on little that more will not increase his profits. He is leaving this fact for the farmer of the future to find out. Slowly we drive along, when some one spies a large barn, strong and well built, painted the familiar red, with many windows; it occupies a conspicuous spot in full view of the road and an admiring public. Graveled drives and bridges lead to a well planned interior, where sleek horses munch a goodly portion. A flight of steps run from floor to mow, where are stored summer's sweetest grasses. Near by is a watering-trough, where thirsty animals may drink. Convenience has been studied and every need supplied. Chickens and turkeys meet you at every turn, darting here and there for the crumbs of the barnyard. No longer a Shanghai rooster pipes a shrill welcome, but the deep-toned clarion of a proud Plymouth greets your ear. With a weather eye on Thanksgiving, the "strutting turkey cock" improves his opportunity, and with a whizz of his wings calls his flock to orderly attention. Prosperity is indicated everywhere.

A cheery "Hello!" stops our musing, and Farmer Brown leads us through a front gate, creaking on rusty hinges. "Don't have much use for a front gate except on Sunday evenings," chuckles the host; "our folks mostly come in the back way." A grass-grown walk, bordered with funeral pines and old-fashioned phlox, brings us to a locked front door. With embarrassed air, it is hastily opened by the daughter of the family, who ushers us into a neatly-kept room, where a sheet-iron stove gives needed warmth. Some stiff chairs, one time-honored rocker, a stand-table and a carpet-covered couch, bought by hard-earned butter money, complete the furniture. "God Bless Our Home," in gorgeous tints, looks down from a startling height. A small lamp and the weekly newspaper are on the table. At two high windows hang cheap lace curtains, and a box covered with wall paper supports some straggling plants in tin cans. Angular and stiff in every appointment, the room supplies warmth and shelter, yet lacks that inviting appearance so vital in a home. Asked to dine at the noon hour, we pass to the kitchen, being told the family have "moved in." Translated, this means that having cooked in the woodshed all summer, in order to have a dining-room free from heat, the cold has forced them to warmer quarters.

The bountiful dinner is served in a crowded kitchen, in full view of pots, skillets and pans. However useful, no one has yet had the courage to call them appetizing or attractive. Meanwhile two hired men with straggling hair, dirty blouses and pants in boots, have come in and taken the best seats at the table with an air of proprietorship. Grace is omitted, and the host, in a hearty way, insists that we "fall to" and help ourselves. A clean cloth covers a bare table, with nothing between, on which dishes rattle with startling sound; heavy queensware and cheap glassware literally fill all the space—there is a popular fancy that any glass dish is a thing of beauty and suitable to hold meat, bread or vegetables. Pork, potatoes, turnips, cabbage, beets and beans, pickles sweet and pickles sour, apple butter, apple pie, raspberry jelly, canned pears, cookies and pumpkin pie, form no uncommon bill of fare. Poor bread and weak coffee too often complete the list. Quantity to create dyspepsia in three weeks, quality of that indifferent sort which indicates no pride in the work and reckless waste of material. A tired-looking housewife wearily answered our attempts at civility and showed surprise at all recent events. Dessert quickly followed. The hired men were gone before we had reached that stage and cast back a look of victory.

After dinner a glimpse into the so-called parlor revealed a cabinet organ. ingrain carpet, the regulation parlor suite, and a table set squarely in the center holding the family album. Proudly the mother showed John's picture, the son who has gone to town to seek his fortune. Seemed as if John never liked to stay at home; complained of being lonesome in the evenings. He is now going to a night school, while he runs an elevator during the day. "'Pears like my boys don't take to the farm," volunteers the old father. "Henry says he is going to teach school next winter. Now I never was much for learnin', but times have changed since I was young."

Yes, my man, times have changed, the boys know there is something better. Had you shot less rabbits and spent more time at the old log school-house many of your hard places would have been less rugged, more smooth.

Three small bedrooms with scanty closets complete the house, a relic of a past generation. The wall paper is of ancient pattern, scratched and marred by many fingers. The outside painted a dingy brown is far from attractive. The rain barrel supplies all the soft water the family uses, though dishes are washed three times a day and clothes once a week. A cistern is not a luxury but a necessity as much as any labor-saving machine. The men are hired for so much per month, boarding, washing and mending included. The door-yard is full of shrubbery, lilacs, roses, peonies, hollyhocks and asparagus fill every spot. When will people learn that flowers left to their own sweet will become an obstruction?

The hooded smoke-house stands in the rear. Every porch and board is scrubbed to snowy whiteness, old boxes and buckets contain remnants of summer flowers. Morning-glories have tried to cover an unsightly wood-house. A woman with her innate love of the beautiful lives here, but its expression is handicapped by overwork and lack of money. The little fund from butter, eggs and poultry supplies the groceries and necessary needs of the table. This rightfully belongs to the women for spending money and all the wants to which femînity is heir. Looking in vain for a cellar, I found only a milk-house fed from a pump by hard labor. No wind-mill here. Bee-hives, hen coops and regiments of chickens are in full view of the front door. Leaving the hostess with a feeling that our coming brought more trouble than pleasure, we seek our carriage pleased with some things disappointed in others, knowing however that we had found the average type of farmer common to Indiana.

Whether you accept the description or not, it is from reality. Scores are worse, many better. With all sympathy and respect I believe our past and present prosperity earns and demands an improved social condition. The farmer produces the luxuries, then why shall he not enjoy.

Listen to a farmer's description of early days: "People lived on corn and bacon, fenced a farm with a couple of dogs. Cooking was an unknown art; eating a necessity. Rain held the roofs in contempt. Snow drifted joyfully on floors and bed. Farmers thought the best place for the pig-pen was in front of the house. There is nothing like sociability. Women were supposed to know the art of making fires without fuel. There was no leisure; no feeling that the work was done. It was all labor, weariness and vexation of spirit."

Truly we have progressed beyond those days, but still will go onward until the typical farmer shall challenge criticism and grace any society.

An intelligent farmer, whose name would be familiar to all, once said to me: "It's no use to try. You can't reach the farming classes and convince them there is an easier and better way of living My wife made me what I am, but the Lord only knows how I got her."

Perhaps that was the incentive to this paper, for I have much confidence in human nature, and believe the farmer tries to improve. There may be men in your county who think that to dig and delve is the true vocation of a farmer, but I warrant he is not here to-day. He is afraid of book farming, newspapers and farmers' institutes. He kills a crowing hen, will not begin to cut wheat on Friday, kills hogs, hews boards, and plants potatoes by the moon, breeds scrub stock, shelters nothing, gets his news from the village grocery, his recreation from a coon hunt. Failure he credits to bad luck, instead of bad management. Does your success come through closing your ears and shutting your eyes, or being constantly on the alert for information? Some time Rip Van Winkle will awake and find his neighbor living in a fine home, driving good horses, and living on the fat of the land. Shall he blame the tariff, curse the Government and damn the corporations? Let us hope he will be an honest man and take home the lesson to his children.

My knowledge of farmers discovers a desire to grow, advance and keep in touch with the times. Let me present a fairer picture, also sketched from reality. The canvas lies within the borders of our own State, the pigments no farther away. My county supplies a few, the State many, who already fill the place occupied by my typical farmer.

He is an active man on the farm, in the church and social circle. His home is within ten miles of the county seat. but near a railroad station, which furnishes transportation and a daily mail. Four hundred acres demand his care and furnish a comfortable, not to say luxurious, living for his family of six—himself, wife, two sons and two daughters. The house fronts on a public highway, built under the free gravel road law of 1877, and kept in repair by public funds. Its grade is uniform and grassy, the gravel of such a character that no season finds it less than good. A lawn containing one and one-half acres slopes gently back until the elevation commands a fair view of the surrounding country and is crowned by a modern house, costing, with fence, well and cistern, $5,000. Attention had been given to the spot with a view to building, and some twenty young forest trees give grateful shade. Maple—hard and soft—graceful elms and spreading beech divide honors with dogwood and common redbud. These flowery friends of the forest have as yet no place in song or story, but annually afford a wealth of bloom The cities have tall buildings, parks and artificial lakes, but nature reserves her choicest scenes for tillers of the soil. Easily transplanted, no capital is required to start this enterprise, paying a handsome profit in comfort and pleasure.

If farmers would appreciate the shade and ornamental trees to be had for the digging, nursery bills and fruitless experiments would be saved.

A few neat flower-beds, gay with geraniums and coleus dot the lawn in sunny spots and afford the needed color. Grass, close mowed and velvety, repays the owner for his yearly mulching. An iron fence, its cost large, but a paying investment, surrounds the enclosure. Tidy walks lead to house and flower garden at the side, where a space 50x50 has been reserved for the purpose. Royal lilies and fragrant pinks occupy the sheltered nooks where hardy plants will survive our coldest winters. Here can bloom in endless profusion the "old-fashioned roses."

From March until November, with moderate care, this plat yields a gorgeous income. Verandas, not one but several, draped with common wood-bine and filled with rustic chairs, promise rest at eventide. A square hall, with hardwood floor polished like a mirror, furnished with a grate and many seats gives a cheery welcome. From it open with folding doors parlor and living-room, each having a sunny outlook. The latter is library and sitting-room combined. Cases for books, four feet high, are built with the house, curtains or sliding glass panels protect them, while the top makes room for bric-a-brac and such things as taste may dictate. The piano and plants are here, easy chairs, and a comfortable lounge. Wide windows give light and fragrance from the outside flowers.

This is the center, the heart of the farm. All interests, all heartaches, all pleasures, find sympathy within these walls. Impressions given and received here will follow each one to his grave. A bedroom, bathroom, dining-room, kitchen and pantry fill the lower floor. Three sleeping-rooms, well ventilated and neatly furnished with hardwood suites are above. A handsome carpet covers the parlor, but with a weakness for the bright side. I cling to a first-class ingrain for the family room, which can soon be changed and turned for extra wear. Matting, clean and inexpensive, covers the chambers, while the dining-room needs hardwood with an oiled finish. Sheep sometimes die even with good care, and these pelts dressed and washed afford a durable rug, a luxury seldom furnished at the stores. Odd chairs of wood, leather and rattan are picked up now and then, and the house gradually filled, while furniture bought in sets cost more, goes out of style and wears out all at the same time.

Good living demands a liberal supply of linen and tasty ware in the dining-room. Dainty serving adds flavor to the feast, and bright bits of china and silver will pay their cost and keep. The typical farmer and his family celebrate every holiday with an exchange of gifts and good will. Such gifts thoughtfully planned add brightness and beauty.

The one kitchen has a modern range and every practical device for saving labor. Cooking is an art, and every man of you can be reached through his stomach. A hardware dealer of my acquaintance who carries a general line from queensware to farming implements, says the rule is for a young farmer just setting up for business to buy the most expensive plows and machinery, then haul home a cooking stove costing $20 or $25. What fine discrimination! What sublime selfishness! The implements are used at most a few weeks each year, but the stove and wife furnish three meals a day. Such a man deserves the worst food the poorest cook can prepare.

This typical home is well supplied with the literature of the day. Not one paper, but a dozen litter the tables. Father, mother, sister, brother, have individual tastes, and each their intellectual food. Games and music fill long evenings. Gossip makes way for sensible conversation. The father does not drive ten miles from a lodge room in the "wee sma' hours" of a winter night, and then refuse to take his family two miles to church. He does not buy a new wagon for the sake of paint and patents and let the family ride on a buckboard. He does not allow John or Jennie to raise a calf or lamb, then take the proceeds of its sale. He don't buy all the new clothes while the wife wears a last year's bonnet. (Ingersoll, whatever his faults, strikes the nail on the head when he says, "The time ought never to come when you can tell a farmer's daughter simply by the garments she wears.") The man of our description keeps abreast with the times. He don't take wife and daughter to town and expect them to do shopping for a season in one day. He don't carry the only pocketbook, select the materials and play grand mogul of every affair. He didn't marry a woman to save him money by slavish drudgery. He sought, perhaps, not a better half, but an equal half to share his house and life. He could not give a mother to his children who would be less than queen of his heart and home. He educates his children, beginning with the public school and finishing at the nearest reputable college. He believes four years of college life worth more than a quarter section He would scorn to die possessed of a thousand acres with his family nobodies from ignorance.

Many details could I yet give of the typical farmer, who must be a kind, intelligent, generous man. With four hundred acres he is not land poor, and as more accumulates it can be invested in other ways. While building or educating his children the surplus will not be large, though the surroundings I have given are not inconsistent with such a farm. What are you living for? I believe in a gospel of happiness. The highest type comes from Christian living, an effort to be better and make the world better. What is patriotism? America, but home? Money is a power, yet after all only a means. Enough for comforts, enough for a good home is enough for a king. Fuss and fume, dig and delve to make more money to buy more land, and at the end what a result! Failure in every duty toward yourself, your family and your God. Rather would I have my father and mother young in heart and mind, companions for the coming years, than acres earned in sweat and privation. Farm drudgery fills our insane asylums, a blot on our State which only typical men can erase. A new disease has recently developed among women in the country and small towns caused by monotonous living. You prate of late hours, irregular meals and excitement being death to a woman. Facts now prove that lack of society will kill, hence the equality of death rate in city and country, long a matter of conjecture.

I would not take away all the work. The dairy, poultry, vegetables and fruit afford avenues of profit and pleasure, and compensate for many lacks of the city. I would take away the hired help and locate them in comfortable tenement houses. This plan no longer admits of question, having been successfully tried. I make no class distinction. The day laborer and his wife, maybe, are your intellectual equals, but their rights, and yours, are best subserved by living apart. Each home should have a sacred privacy, and more profit accrues to them. Blame no child for use of language picked up from a transient "hand"; reprove no bad manners if you retain a man guilty of like errors.

Soil, rotations, crops and fertilizers demand study. Supplement willing hands with active brains; better wear out than rust out.

I do not forget the thousands who work for daily bread; neither do I forget that this is America, with opportunities second to none. Free schools, good roads and improved methods make you kings beside the pioneers of our State. The French and English farmer works just as hard, earns half as much and lives on half as much as we do. With present facilities for acquiring land, the renter of to-day may be a typical farmer within fifteen years. First get a forty, then an eighty, and ambition will grow with ownership. The harvest awaits the gleaner. I have pictured the farmer more than the farm, but that may be safely left to him who keeps his home at the standard.

Born and reared on a farm, I know the uncertainty of seasons, the ups and downs of the hillsides, the ins and outs of the cows in the corn, and can join hands with any farmer who takes pride in the present prosperity and future greatness of Indiana. My aim has been to suggest, not to criticise. Farmers get in a rut. It takes a brisk gee or haw to get them out. Let us make the most of our chances, our freedom, our independence, and seek the best that destiny has in store.

Charles F. Kennedy offered the following resolution:

Resolved, That a vote of thanks be extended to Mr. Anthony Wiegand, florist, for the profusion of plants provided for the hall during the delegates' meeting.

The resolution was seconded and carried.

Mr. Conger offered the following resolution:

Resolved, That this Delegate Board return thanks to all those who have participated in our meetings by delivering addresses or reading papers, viz: Governor

Matthews, Mayor Denny, Mrs. Meredith and Mrs. Waugh; and also especially to the press, which has treated us so kindly.

The motion was carried.

A recess was then taken until 1:30.

WEDNESDAY AFTERNOON.

JANUARY 3, 1894, 1:30 O'CLOCK.

The final report of the Committee on Credentials was read by the Secretary, which report is the roll-call of delegates as printed in this volume.

On motion of J. E. McDonald, seconded by Mr. Dickson, the report of the Committee on Credentials was amended so as to recognize the vote of Don K. Hitchcock, of Noble County, as representative of the Eastern Indiana Agricultural Association, inasmuch as it was only by a delay of the mails that his credentials were not in the hands of the committee.

On motion of Mr. Smith, the report of the Committee on Credentials, as amended, was adopted, and the committee discharged.

ELECTION OF MEMBERS OF THE STATE BOARD.

The time having arrived for the election of members of the Board, the President appointed as tellers, Mr. Cravens, Mr. Lyman, and Mr. Childs.

First District—The only candidate from the First District was Robert A. Mitchell.

On motion of Mr. Stevens, the Secretary was instructed, in-as-much as Mr. Mitchell had no opposition, to cast the entire vote of the Delegate Board, 60 votes, for his election.

The vote being cast by the Secretary, Mr. Mitchell was declared unanimously elected a member of the Board from the First District for the ensuing two years.

Second District—The only candidate from the Second District was James S. McCoy.

On motion of Mr. Judah, the Secretary was instructed to cast the entire vote of this Delegate Board, 60 votes, for James S. McCoy as member of the Board from the Second District.

The vote being cast by the Secretary, James S McCoy was declared by the President unanimously elected member of the Board to serve for the ensuing two years.

Third District—The candidates for the Third District were W. W. Stephens, of Salem, and T. S. Getzendenner, of Corydon.

On motion of Mr. Davidson, the candidates were asked to step to the front and be introduced to the members.

J. E. McDonald moved that, pending the counting of this ballot, the Board proceed to the election of the succeeding candidates.

The motion was seconded and carried.

The vote for members of the Third District resulted as follows: Whole number of votes cast, 57, of which W. W. Stephens, received 40, and T. S. Getzendenner received 17.

Mr. Stephens was declared duly elected for the ensuing two years as member from the Third District.

Fourth District—The candidates for member of the State Board from the Fourth District were J. W. LaGrange, John Tilson and Hon. W. B. Seward.

W. A. Banks. I think, inasmuch as it is confusing, there should be a reconsideration of the motion to proceed to the next vote while the counting is in progress.

J. E McDonald. In deference to the wishes of my friend, Mr. Banks, as mover of that motion, I now move to reconsider it.

The motion was seconded and carried.

The Secretary then read the result of the ballot for membership in the Fourth District, as follows: Whole number of votes cast, 58, of which J. W. LaGrange received 26; J. W. Tilson, 19; W. B. Seward, 13.

There being no choice, the tellers were directed to collect the votes on a second ballot.

Mr. Dill then withdrew the name of W. B. Seward as a candidate from the Fourth District, and it was taken by consent.

The result of the second ballot was as follows: Whole number of votes cast, 58, of which Mr. LaGrange received 34 and Mr. Tilson 24.

Mr. LaGrange was declared by the President elected member from the Fourth District for the ensuing two years.

Seventh District—The candidates for the Seventh District were H. B. Howland, Carrol Darnell and W. B. Holton.

The vote resulted as follows: Whole number of votes cast, 58, of which H. B. Howland received 20, W. B. Holton 36 and Mr. Darnell 2.

W. B. Holton was declared elected member of the Board from the Seventh District for the ensuing two years.

Fourteenth District—The only candidate was Mr. C. B. Harris.

On motion of W. W. Stephens the Secretary was instructed to cast 58 votes for C. B. Harris.

The vote being cast by the Secretary, C. B. Harris was declared elected by unanimous vote member of the Board from the Fourteenth District for the ensuing two years.

Fifteenth District—The candidates were Dickson W. Place and Aaron Jones.

The vote resulted as follows: Whole number votes cast, 58, of which Mr. Place received 18 and Mr. Jones 40.

Aaron Jones was declared elected member of the Board from the Fifteenth District for the ensuing two years.

Sixteenth District—The candidates were R. M. Lockhart and James E. McDonald.

The ballot resulted as follows: Whole number of votes east, 58, of which R. M. Lockhart received 20 and J. E. McDonald 38.

J. E. McDonald was declared elected member of the State Board from the Sixteenth District for the ensuing two years.

On motion the Board then adjourned *sine die*.

INDIANA STATE FAIR, 1893.

LIST OF AWARDS.

SPEED DEPARTMENT.

H. B. Howland, Superintendent.
C. Creveling, Starting Judge.

C. H. Anthony,
M. A. McDonald, } Judges.
W. W. Baker,

H. Bacon,
Horace Brown, } Timers.

Charles Downing, Clerk.

TUESDAY, SEPTEMBER 19th.

2:20 Class for Pacers. $1,000 divided—$500, $250, $150, $100. Eighteen nominations and twelve starters.

SUMMARY.

Indianapolis Boy, b. s	2	1	1	1
Nellie O., c. m	1	4	2	10
Freeland, b. s	4	2	3	7
Rollo, b. g	10	6	5	2
Pat Murphy, br. g	3	3	10	4
Little Frank, br. s	12	8	4	3
Clint Kiff, c. s	6	5	11	6
Joe Rowe, br. s	8	7	6	5
Ialene, ch. m	5	10	8	11
Bessie Polk	7	9	7	9
Alti, b. s	9	11	9	8
Moscow, g. m.	11	Dis.		

Time, 2:13½, 2:13½, 2:17¼, 2:16½.

2:25 Class for Trotters. $1,000 divided—$500, $250, $150, $100. Twenty-five nominations and eight starters.

SUMMARY.

Cartridge, bl. s	1	1	1
Diamond Joe, b. g	2	2	2
Russelmont, b. s.	8	3	3
Gamer, b. s.	3	5	6
Litta, b. m	6	4	4
Cleopatra, bl. m.	4	8	7
Rensselaer Wilkes, ch. s	5	6	5
Edgar Wilkes, b. s.	7	7	8

Time, 2:20¼, 2:18¼, 2:20.

Two-year-old Class for Pacers. $300 divided—$180, $75, $45. Nine nominations and three starters.

Danson Lake	1	1
Geo. Wallace, b. s.	2	3
Vistige, br. s.	3	2

Time, 2:24¼, 2:20¼.

WEDNESDAY, SEPTEMBER 20TH.

2:25 Class for Pacers. $1,000 divided—$500, $250, $150, $100. Seventeen nominations and eight starters.

Bourbon Patchen, ch. s	2	1	1	1
Calera, b. m	1	2	3	7
Bell J., b. m	7	7	2	2
Minnie R., d. m	3	4	4	4
Merrimack, b. m	5	3	5	5
Fedalma, c. m	8	8	7	3
Deck Wright, b. s	6	6	6	6
Templeton c. g.	4	5	Dis.	

Time, 2:18½, 2:15½, 2:19½, 2:20.

2:19 Class for Trotters. $1,000 divided—$500, $250, $150, $100. Nineteen nominations and nine starters.

General Cass, g. s	1	1	1
Peveril, ch. m.	2	2	5
Wanetta, b. m	6	3	5
Palmy Boy, rn. g	7	5	3
Bersica, b. m	3	6	6
Seaside, b. m	4	4	4
Eura, ch. m.	5	8	8
Nuncio, b. s.	8	7	7
Borada, b. s	Dis.		

Time, 2:23¾, 2:22¾, 2:21¼.

Two-year-old Class for Trotters. $300 divided—$180, $75, $45. Eight nominations, six starters.

Goquac, b. c	4	1	1
Geo. Morrison, br. c.	1	3	2
Tero, c. c.	3	2	5
Lauretta, b. f.	2	5	3
Imitator, b. c	6	4	4
Fielder, b. c.	5	6	6

Time, 2:31¼, 2:27, 2:27¾.

THURSDAY, SEPTEMBER 21ST.

2:11 Class for Pacers. $1,000 divided—$500, $250, $150, $100. Fifteen nominations, nine starters.

Atlantic King, bl. s	1	1	1
Kissel's Dallas, ch. g.	4	2	3
Coastman, b. s.	2	3	6
Barney, b. g	6	5	2
Henry F., b. s.	5	6	4
Bessemer, br. s.	7	4	5
John B., bl. s	3	Dis.	
Prince T., rn. g	8	Dis.	
Boone Wilson, gr. s	Dis.		

Time, 2:11¼, 2:10¼, 2:10¼.

2:15 Class for Trotters. $1,000 divided—$500, $2.50, $150, $100. Twelve nominations, seven starters.

David B., ch. g	7	6	1	1	1
Brignoli Wilkes, bl. s.	1	1	3	7	2
Florida, bl. m	5	3	2	3	4
Jack Sheppard, b. g.	6	5	5	2	3
Birdie R., b. m	3	4	6	5	5
Broomal, b. s	4	7	4	4	6
Gertrude, ch. m	2	2	7	6	Dis.

Time, 2:15½, 2:14¾, 2:13½, 2.12¾, 2:14¼.

Three-year-old Class for Pacers. $300 divided—$180, $75, $45. Seven nominations, six starters.

Baron Bell, blk. s	2	2	1	1	1
Touchstone, b. g.	4	1	2	2	2
Mattie Warren, b. m.	1	4	4	3	4
Frank Agan, b. s	3	3	3	4	3
Prince Elwood	5	5	5	Dis.	
Lilly B., b. m	Dis.				

Time, 2:19¼, 2:19¼, 2:21½, 2:22, 2:20½.

FRIDAY, SEPTEMBER 22D.

2:15 Class for Pacers. $1,000 divided—$500, $250, $150, $100. Sixteen nominations and twelve starters.

Jack Bowers, c. g	1	1	1
Coast Boy, b. s	8	2	2
Forest Wilkes, b. s	2	8	7
Hustler, b. g	3	6	5
Rocker, b. g	7	5	3
Nellie F, b. m	6	3	8
Apple Jack, b. s	9	4	4
Floral Boy, b. s.	4	7	10
Prince T, r. g.	5	9	9
Nuthurst, c. s.	10	10	6
Touch-me-not, s. m	Dis.		
Bona Venture, b. s	Dis.		

Time, 2:14¼, 2:12¼, 2:11¼.

Three-year-old Class for Trotters. $300 divided—$180, $75, $45. Seven nominations and five starters.

Pythera, s. m	1	1	1
Why-not, g. m	4	2	2
Miss Cecil, b. m.	2	3	4
Belado, g. s.	3	5	3
Eva Clay, g. m	5	4	5

Time, 2:21¼, 2:22¾, 2:23¾.

Special match race.

May Wilkes, b. s	1	2	1
Zilkes, b. m	2	1	2

Time, 2:32, 2:38½, 2:35¼.

Special match race.

Dech Wright, r. s.	1	2	1
Kaiser Wilkes, b. s	2	1	2

Time, 2:27½, 2:26¼, 2:23¼.

Special match race.

Jubilee Chief, br. s	1	1
Coaston, g. s.	2	2

Time, 2:35½, 2:38½.

To beat, 2:20¾.

Gambir, b. s	1

Time, 2:18.

HEAVY HORSES.

M. S. CLAYPOOL, Superintendent.

CLASS I—French Draft.

STALLIONS.

4 years old and over, J. W. McNamee, New Palestine	$20 00
Colt under one year old, J. W. McNamee, New Palestine	20 00

MARES.

4 years old and over, J. W. McNamee, New Palestine	20 00
Second, J. W. McNamee, New Palestine	10 00
3 years old and under 4, J. W. McNamee, New Palestine	20 00
2 years old and under 3, J. W. McNamee, New Palestine	20 00
1 year old and under 2, J. W. McNamee, New Palestine	20 00
Colt under 1 year old, J. W. McNamee, New Palestine	20 00

CLASS II—Percherons.

STALLIONS.

4 years old and over, Cantel No. 17825; Percheron Stud Book of America; foaled April 3, 1889; sired by Deride No. 13416; dam Margot, by Favora No. 765; bred by M. Chevalier, Vannoise, France; owned and exhibited by McLaughlin Bros., Columbus, Ohio	20 00
3 years old and over, Nerveux No. 16909; Percheron Stud Book of America; foaled February 27, 1890; sired by Vendredi No. 15363; dam Sisette, by Morton No. 1640; bred by M. Maintenant, Bonnetere, France; owned and exhibited by McLaughlin Bros., Columbus, Ohio	20 00
1 year old and under 2, J. W. McNamee, New Palestine	20 00

MARES.

4 years old and over, J. W. McNamee, New Palestine	20 00

CLASS III—Clydesdales.

STALLIONS.

4 years old and over, W. A. Banks, Laporte, Ind.	20 00
Second, Lowland Lad No. 4854; Clydesdale Stud Book of Great Britain and Ireland; foaled May, 1887; Sired by Lowland Chief No. 4548; dam Blossom, by Scottish Knight, by Farmer No. 286; bred by Messrs. Bell, Annan, Scotland; owned and exhibited by Brookside Farm Co., Ft. Wayne, Ind.	10 00

3 years old and under 4, W. A. Banks, Laporte, Ind	$20 00
Second, Culhom Lad No. 5653; American Clydesdale Stud Book; foaled May 10, 1890; sired by Prince Arthur Wellesley No. 2511; dam Culhom Jean, by Lord Lyon No. 489; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne, Ind	10 00
2 years old and under 3, W. A. Banks, Laporte, Ind	20 00
Second, Never Fail No. 6577; American Clydesdale Stud Book; foaled May 10, 1891; sired by The Masher No. 2515; dam Rosie of Lochfugus 1st, by Baron Lyon No. 908; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne, Ind	10 00
1 year old and under 2, Erskine's Hero No. 7008; American Clydesdale Stud Book; foaled June 2, 1892; sired by Erskine's Heir No. 6852; dam Culhom Jean, by Lord Lyon No. 489; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne, Ind	20 00
Second, W. A. Banks, Laporte, Ind	10 00
Colt under 1 year, W. A. Banks, Laporte, Ind	

MARES.

4 years old and over, Nancy Bell No. 4726; American Clydesdale Stud Book; foaled June 24, 1889; sired by Cleveland No. 2128; dam Nancy D., by Prince Albert No. 615; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne, Ind	20 00
Second, E. S. R. No. 4145; American Clydesdale Stud Book; foaled August 24, 1888; sired by Prince Arthur Wellesley No. 2511; dam Darling of Barsalloch, by Young Prince of Reupen No. 1014; bred by Brookside Farm Co., Ft. Wayne; owned and exhibited by Brookside Farm Co., Ft. Wayne	10 00
3 years old and under 4, Rosie of Brookside 1st, No. 5635; American Clydesdale Stud Book; foaled June 5, 1890; sired by Prince Arthur Wellesley No. 2511; dam Rosie of Brookside, by The Masher No. 2515; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne	20 00
Second, Maggie of Brookside No. 5633; American Clydesdale Stud Book; foaled May 5, 1890; sired by Prince Arthur Wellesley No. 2511; dam Maggie D, by General Neil No. 1143; bred by Brookside Farm Co., Ft. Wayne; owned and exhibited by Brookside Farm Co., Ft. Wayne	10 00
2 years old and under 3, Rosie 2d, of Brookside, No. 6578; American Clydesdale Stud Book; foaled May 30, 1891; sired by Prince William No. 2514; dam Rosie of Brookside, by The Masher No. 2515; bred by Brookside Farm Co., Ft. Wayne; owned and exhibited by Brookside Farm Co., Ft. Wayne	20 00

Second, Bessie Bell No. 6573; American Clydesdale Stud Book; foaled May 15, 1891; sired by Erskine's Heir No. 7852; dam Bessie Grey, by Zephyr No. 3331; bred by Brookside Farm Co., Ft. Wayne; owned and exhibited by Brookside Farm Co, Ft. Wayne	$10 00
1 year old and under 2; W. A. Banks, Laporte, Ind.	20 00
Second, Nancy Scott No. 7014; American Clydesdale Stud Book; foaled May 13, 1892; sired by Erskine's Heir No. 6852; dam Nancy B., by Cleveland No. 2128; bred by Brookside Farm Co., Ft. Wayne; owned and exhibited by Brookside Farm Co., Ft. Wayne	10 00
Colt under 1 year, Nancy Bell 1st; American Clydesdale Stud Book; foaled April 20, 1893; sired by Calhoun Lad No. 5663; dam Nancy Bell, by Cleveland No. 2128; bred by Brookside Farm Co., Ft. Wayne; owned and exhibited by Brookside Farm Co., Ft. Wayne	20 00
Second, S. W. Fletcher, Indianapolis	10 00

CLASS IV—*English Shires.*

STALLIONS.

4 years old and over, Geo. E. McKaig, Chicago, Ill	20 00
Second, L. W. Cockran, Crawfordsville	10 00
3 years old and under 4, Thompson & Bland, Crawfordsville	20 00
1 year old and under 2, Geo. E. McKaig, Chicago, Ill	20 00

MARES.

2 years old and under 3, Geo. E. McKaig, Chicago, Ill	20 00
1 year old and under 2, Geo. E. McKaig, Chicago, Ill	20 00

CLASS V—*Belgians.*

STALLIONS.

4 years old and over, J. T. Pressly, Indianapolis	20 00
Second, John Shields, Nora	

CLASS VI—*Cleveland Bays.*

STALLIONS.

4 years old and over, Geo. E. McKaig, Chicago, Ill	20 00
Second, W. A. Banks, Laporte	10 00
3 years old and under 4, Geo. E. McKaig, Chicago, Ill	20 00
2 years old and under 3, W. A. Banks, Laporte	20 00
1 year old and under 2, W. A. Banks, Laporte	20 00

MARES.

4 years old and over, W. A. Banks, Laporte	$20 00
Second, Geo. E. McKaig, Chicago, Ill.	10 00
3 years old and under 4, W. A. Banks, Laporte	20 00
Second, Geo. E. McKaig, Chicago, Ill.	10 00
2 years old and under 3, Geo. E. McKaig, Chicago, Ill	20 00
Second, W. A. Banks, Laporte	10 00
1 year old and under 2, W. A. Banks, Laporte	20 00
Second, Geo. E. McKaig, Chicago, Ill.	10 00
Colt, under 1 year, W. A. Banks, Laporte	20 00
Second, Geo. E. McKaig, Chicago, Ill.	10 00

LIGHT HARNESS AND COACH HORSES.

W. A. Banks, Superintendent.

CLASS VII—French Coach.

STALLIONS.

4 years and over, Lazuli No. 1531; French Coach Stud Book of America; foaled April 15, 1889; sired by Valdempierre; dam Mariguita by Und; bred by M. Thouirr, Fontenay, France; owned and exhibited by McLaughlin Bros., Columbus, O	20 00
Second, Dictatem No. 1532; French Coach Book of America; foaled March 8, 1888; sired by Calemback; dam Sophie by Ultrecht; bred by Eugene Blandamour, Yoclot, France; owned and exhibited by McLaughlin Bros., Columbus O.	10 00
3 years and under 4, Montjoie No. 1527; French Coach Stud Book of America; foaled April 15, 1890; sired by Capara; dam Perdrix by Laboureur; bred by Francois Bieuveun, Urville, France; owned and exhibited by McLaughlin, Bros., Columbus, O	20 00
Second, Mais No. 1529; French Coach Stud Book of America; foaled May 12, 1890; sired by Don Quichotte; dam Julie by Uzos; bred by M. A. Senoze, St. Leger du Bosque, France; owned and exhibited by McLaughlin Bros., Columbus, O.	10 00

CLASS VIII—German Coach.

STALLIONS.

4 years old and over, Alonzo Yound, Crawfordsville	20 00
Second, J. T. Pressly Indianapolis	10 00
3 years old and under 2, Rorker & Thompson, Zionsville	20 00

CLASS IX—Hackneys.

STALLIONS.

4 years old and over, L. W. Cockran, Crawfordsville	$20 00
Second, Thompson & Bland, Crawfordsville	10 00
3 years old and under 4, Thompson & Bland, Crawfordsville	20 00
Second, Thompson & Bland, Crawfordsville	10 00
2 years old and under 3, Thompson & Bland, Crawfordsville	20 00
Second, Thompson & Bland, Crawfordsville	10 00
1 year old and under 2, Thompson & Bland, Crawfordsville	20 00
Second, Thompson & Bland, Crawfordsville	10 00

MARES.

4 years old and over, Thompson & Bland, Crawfordsville	20 00
Second, Thompson & Bland, Crawfordsville	10 00
3 years old and under 4, Thompson & Bland, Crawfordsville	20 00
Second, Thompson & Bland, Crawfordsville	10 00
2 years old and under 3, Thompson & Bland, Crawfordsville	20 00
1 year old and under 2, Thompson & Bland, Crawfordsville	20 00
Colt, under 1 year, Thompson & Bland, Crawfordsville	20 00

CLASS X—American Coach.

STALLIONS.

4 years old and over, J. N. Dickerson, Indianapolis	20 00
Second, J. R. Peak & Sons, Winchester, Ill	10 00
3 years old and under 4, Frank Clay No. 18683; American Trotting Horse Register; foaled March 18, 1890; sired by Fire Clay No. 6653; dam Helen, by Volunteer Star No. 1614; bred by Frank Kitchen, Kingston, Ind.; owned and exhibited by J. W. White, Adams, Ind.	20 00
Second, Romeo Wilkes; foaled May 12, 1890; sired by The King No. 1977; dam Princess, by Romeo No. 2080; bred by H. Robey, Sabine, Ind.; owned and exhibited by J. W. Robey, Sabine, Ind	10 00
2 years old and under 3, J. R. Peak & Sons, Winchester, Ill	20 00
1 year old and under 2, Jubalier; foaled April 25, 1892; sired by Jubilee Chief No. 10494; dam Nellie C, by Grenadier No. 535; bred by Marcus Carey, Carmel, Ind.; owned and exhibited by Marcus Carey, Carmel, Ind	20 00
Colt, under 1 year, Alveo; foaled May 2, 1893; sired by Richmond No. 10430; dam Nellie, by Grenadier No. 535; bred by H. Robey, Sabine, Ind; owned and exhibited by J. W. Robey, Sabine, Ind	20 00

MARES.

4 years old and over, J. R. Peak & Sons, Winchester, Ill	$20 00
Second, J. R. Peak & Sons, Winchester, Ill	10 00
3 years old and under 4, Archer Greathouse, Indianapolis	20 00
Second, J. R. Peak & Sons, Winchester, Ill	10 00
2 years old and under 3, W. M. Smock, Indianapolis	20 00
Second, J. R. Peak & Sons, Winchester, Ill	10 00
1 year old and under 2, J. R. Peak & Sons, Winchester, Ill	20 00
Colt under 1 year, J. R. Peak & Sons, Winchester, Ill	10 00
Second, Daisy F.; foaled April, 1893; Sired by Crusader, Jr.; dam, Pet, by Tilton; bred by Amos Fouty, Shelbyville, Ind.; owned and exexhibited by Amos Fouty, Shelbyville, Ind.	

CLASS XI—*Morgans.*

STALLIONS.

4 years old and over, Hornsly & Stevens, Salem, Ind	20 00
Second, Hornsly & Stevens, Salem, Ind	10 00
3 years old and under 4, Hornsly & Stevens, Salem, Ind	20 00
Second, Hornsly & Stevens, Salem, Ind	10 00
2 years old and under 3, Hornsly & Stevens, Salem, Ind	20 00
Second, Hornsly & Stevens, Salem, Ind.	10 00
1 year old and under 2, Hornsly & Stevens, Salem, Ind.	20 00

MARES.

4 years old and over, Hornsly & Stevens, Salem, Ind.	20 00
Second, Hornsly & Stevens, Salem, Ind.	10 00
3 years old and under 4, Hornsly & Stevens, Salem, Ind	20 00
Second, Hornsly & Stevens, Salem, Ind.	10 00
2 years old and under 3, Hornsly & Stevens, Salem, Ind	20 00
1 year old and under 2, Hornsly & Stevens, Salem, Ind	20 00
Second, Hornsly & Stevens, Salem, Ind	10 00
Colt under 1 year, Hornsly & Stevens, Salem, Ind	20 00
Second, Hornsly & Stevens, Salem, Ind.	10 00

CLASS XII—Light Harness.

STALLIONS.

4 years old and over, Rensselaer Wilkes (2:28) No. 19922; American Trotting Horse Register; foaled June 24, 1889; sired by Alcalltara (2:23) No. 729; dam Neva, sister to Herman (2:24¾), by Nutwood (2:18¾) No. 600; bred by Highland Farm, Lee, Mass; owned and exhibited Rensselaer Stock Farm, Rensselaer, Ind.	20 00
Second, Smith Graves, Indianapolis	10 00
3 years old and under 4, Thomas Levi, Noblesville	20 00

Second, Venture, American Trotting Horse Register; foaled March 4, 1890; sired by Richmond, No. 10430, dam Belle, by Grenadier No. 535; bred by Jas. Robey, Sabine, Ind; owned and exhibited by J. Wm. Robey, Sabine, Ind	$10 00
2 years old and under 3, Imitator; foaled May 15, 1891, sired by Delineator; dam Pattie Bosson, by Scott's Hambrino; bred by R. S. Hill, Indianapolis; owned and exhibited by Mrs. R. S. Hill, Indianapolis,	20 00
Second, W. F. Christian, Indianapolis	10 00
1 year old and under 2, M. L. Hare, Indianapolis	20 00
Colt under 1 year, Corbit; American Trotting Horse Register; foaled May 10, 1893; sired by Redown No. 14214, dam Princess, by Romeo No. 2080; bred by J. W. Robey, Sabine, Ind.; owned and exhibited by J. W. Robey, Sabine, Ind	20 00
Second, M. L. Hare, Indianapolis	10 00

MARES.

4 years old and over, M. L. Hare, Indianapolis	20 00
Second, Pleas. Almond, Plainfield	10 00
3 years old and under 4, Harry Shultz, Lexington, Ky.	20 00
Second, Stamboul Maid; American Trotting Horse Register; foaled February 12, 1890; sired by Stamboul No. 5101, dam Ednah, by Indianapolis No. 517; bred by L. J. Rose, Los Angeles, Cal.; owned and exhibited by the Rensselaer Stock Farm, Rensselaer, Ind	10 00
2 years old and under 3, Harry Shultz, Lexington, Ky.	20 00
Second, M. L. Hare, Indianapolis	10 00
1 year old under 2, M. L. Hare, Indianapolis.	20 00
Second, J. R. Peak & Sons, Winchester, Ill	10 00
Colt under 1 year, M. L. Hare, Indianapolis	20 00
Second, Fanny C.; foaled April, 1893; sired by Crusader, Jr.; dam Topsy, by Thos. A. Scott; bred by Amos Fouty, Shelbyville, Ind.; owned and exhibited by Amos Fouty, Shelbyville, Ind.	10 00

CLASS XIII—Roadsters, Teams and Saddlers.

Coach or carriage teams, J. R. Peak & Sons, Winchester, Ill	20 00
Single roadsters, mare or gelding, M. L. Hare, Indianapolis	20 00
Second, Marion Wright, Sheridan, Ind.	10 00
Double roadsters, Hornsly & Stevens, Salem, Ind	20 00
Second, F. W. Harlan, Crawfordsville	10 00
Saddle mare or gelding, J. H. Slater, Indianapolis.	20 00
Second, Peter Lowes, Indianapolis	10 00

Sweepstakes—Herds.

Consisting of 1 stallion any age, 1 mare 4 years or over, 1 mare 3 years and under 4, 1 mare 2 years and under 3, 1 mare 1 year and under 2, 1 suckling filly, Brookside Farm Co., Ft. Wayne	100 00
Second, W. A. Banks, Laporte.	50 00

Coach.

Consisting of 1 stallion any age, 1 mare 4 years and over, 1 mare 3 years and under 4, 1 mare 2 years and under 3, 1 mare 1 year and under 2, 1 suckling filly, W. A. Banks, Laporte	$100 00
Second, J. R. Peak & Sons, Winchester, Ill	50 00

Light Harness.

Consisting of 1 stallion any age, 1 mare 4 years old or over, 1 mare 3 years old and under 4, 1 mare 2 years old and under 3, 1 mare 1 year old and under 2, 1 suckling filly, M. L. Hare, Indianapolis	100 00
Second, Hornsley & Stevens, Salem, Ind.	10 00

CLASS XIV—Mules.

W. W. Hamilton, Superintendent.

3 years old and over, M. L. Hare, Indianapolis, Ind	20 00
Second, M. L. Hare, Indianapolis, Ind	10 00

CATTLE.

BEEF BREEDS.

T. M. Sankey, Superintendent.

CLASS XV—Shorthorns.

BULLS.

3 years old and over, Gay Monarch No. 92411, American Shorthorn Herd Book; calved January 26, 1887; sired by William of Orange No. 50694; dam Alexandria 17th, by Athabasca No. 47357; bred by Wm. S. Marr, Uppermill, Scotland; owned and exhibited by J. G. Robbins & Sons, Horace, Ind	$20 00
Second, Gartin & Sons, Burney, Ind	10 00
2 years old and under 3, C. L. Gerlaugh, Osborn, O	20 00
Second, Royal Phyllis 3rd, No. 113625, American Herd Book; calved November 10, 1890; sired by Imp. Royal Briton No. 100596; dam Pattie Napier 2nd, by Napoleon No. 57178; bred by Green Bros., Indianola, Ill.; owned and exhibited by Green Bros., Indianola, Ill	10 00
1 year old and under 2, Royal Consul 2nd, No. 113589, American Shorthorn Herd Book; calved December 25, 1891; sired by Imp. Royal Briton No. 100596; dam Victoria Nonpareil, by Imp. Vice-Consul, No. 95532; bred by Green Bros., Indianola, Ill.; owned and exhibited by Green Bros., Indianola, Ill	20 00

Second, F. Gartin & Sons, Burney, Ind	$10 00
Under 1 year, F. Gartin & Sons, Burney, Ind	15 00
Second, C. L. Gerlaugh, Osborn, O.	10 00

COWS.

3 years and over, Gay Mary, American Shorthorn Herd Book; calved October 16, 1889; sired by Gay Monarch No. 92411; dam Mollie Ainsley, by London Bob No. 60351; bred by J. G. Robbins & Sons, Horace, Ind.; owned and exhibited by J. G. Robbins & Sons, Horace	20 00
Second, F. Gartin & Sons, Burney, Ind	10 00
2 years old and under 3, T. E. Elbau & Son, Venedocia, O	20 00
Second, T. E. Elbau & Son, Venedocia, O	10 00

HEIFERS.

1 year old and under 2, C. L. Gerlaugh, Osborn, O.	20 00
Second, T. E. Elbau & Son, Venedocia, O.	10 00
Under 1 year, T. E. Elbau & Son, Venedocia, O	20 00
Second, Nancy Hanks; American Shorthorn Herd Book; calved October 15, 1893; sired by Gay Monarch No. 92411; dam Nora, by Enterprise No. 41901; bred by J. G. Robbins & Sons, Horace, Ind.; owned and exhibited by J. G. Robbins & Sons, Horace, Ind.	10 00

HERDS.

Best herd of Shorthorns, comprising 1 bull and 5 cows, over 2 years old; owned by exhibitor; J. G. Robbins & Sons, Horace, Ind	60 00
Second, T. E. Elbau & Son, Venedocia, O	40 00
Best young herd of Shorthorns, comprising 1 bull and 4 heifers, under 2 years old; owned by exhibitors; Green Bros., Indianola, Ill	45 00
Second, T. E. Elbau & Son, Venedocia, O.	30 00

CLASS XVI—Devons.

BULLS.

3 years old and over, Little Brat; calved March 19, 1883; sired by Dexter No. 1842; dam Laura 3d, No. 1789, by Arrowhead No. 255; bred by J. J. Scarff & Son, New Carlisle, O.; owned and exhibited by D. J. Whitmore & Co., Casstown, O	20 00
Second, W. E. Lewis, Troy, O	10 00
2 years old and under 3, W. E. Lewis, Troy, O.	20 00
Second, Butterworth; calved February 9, 1891; sired by Little Brat No. 2534; dam Lucretia No. 4665, by Col. Ryan No. 410; bred by D. J. Whitmore & Co., Casstown, O.; owned and exhibited by D. J. Whitmore & Co., Casstown, O.	10 00

1 year old and under 2, W. E. Lewis, Troy, O.	$20 00
Second, Bogus; calved May 26, 1892; sired by Wave No. 4946; dam Beulah Lee No. 6810, by Butler No. 357; bred by D. J. Whitmore & Co., Casstown, O.; owned and exhibited by D. J. Whitmore & Co., Casstown, O.	10 00
Under 1 year, Bull Calf; calved February 19, 1893; sired by Little Brat No. 2534; dam Boski, by Bremer No. 3001; bred by D. J. Whitmore & Co., Casstown, O.; owned and exhibited by D. J. Whitmore & Co., Casstown, O.	15 00
Second, Bon Dixie; calved April 28, 1893; sired by Wave No. 4946; dam Zeta Hebe, by Bremer No. 3001; bred by D. J. Whitmore & Co., Casstown, O.; owned and exhibited by D. J. Whitmore & Co., Casstown, O.	10 00

COWS.

3 years old and over, D. J. Whitmore & Co., Casstown, O.	20 00
Second, D. J. Whitmore & Co., Casstown, O.	10 00
2 years old and under 3, D. J. Whitmore & Co., Casstown, O.	20 00
Second, D. J. Whitmore & Co., Casstown, O.	10 00

HEIFERS.

1 year old and under 2; Ida Y. No. 8719; American Devon Record; calved November 7, 1887; sired by Prince of Lopen No. 1581; dam Beulah Lee, by Butler No. 357; bred by D. J. Whitmore & Co.; owned and exhibited by D. J. Whitmore & Co., Casstown, O.	20 00
Second, Leda Hebe; American Devon Record; calved January 12, 1890; sired by Bremtner No. 4665; dam Isadore Lewis by Bremer No. 3001; bred by D. J. Whitmore & Co., Casstown, O.; owned and exhibited by D. J. Whitmore & Co., Casstown, O	10 00
Under 1 year, D. J. Whitmore & Co., Casstown, O	15 00
Second, D. J. Whitmore & Co., Casstown, O.	10 00

HERDS.

Best herd of Devons, comprising 1 bull and 5 cows over 2 years old, owned by one exhibitor; D. J. Whitmore & Co., Casstown, O	60 00
Second, W. E. Lewis, Troy, O	40 00
Best young herd of Devons, comprising 1 bull and 4 heifers, under 2 years old owned by exhibitor; D. J. Whitmore & Co., Casstown, O	45 00
Second, W. E. Lewis, Troy, O	30 00

CLASS XVII—All Red Polls.

BULLS.

3 years old and over, J. H. Miller, Mexico, Ind	$20 00
Second, J. H. Miller, Mexico, Ind	10 00
2 years old and under 3, J. H. Miller, Mexico, Ind.	20 00
1 year old and under 2, J. H. Miller, Mexico, Ind	20 00
Under 1 year, J. H. Miller, Mexico, Ind	15 00
Second, J. H. Miller, Mexico, Ind	10 00

COWS.

3 years old and over, J. H. Miller, Mexico, Ind	20 00
Second, J. H. Miller, Mexico, Ind	10 00
2 years old and under 3, J. H. Miller, Mexico, Ind	20 00
Second, J. H. Miller, Mexico, Ind	10 00

HEIFERS.

1 year old and under 2, J. H. Miller, Mexico, Ind	20 00
Second, J. H. Miller, Mexico, Ind	10 00
Under 1 year, J. H. Miller, Mexico, Ind	15 00
Second, J. H. Miller, Mexico, Ind	10 00

HERDS.

Best herd All Red Polls, comprising 1 bull and 5 cows over 2 years old; owned by exhibitor; J. H. Miller, Mexico, Ind	60 00
Second, J. H. Miller, Mexico, Ind	40 00
Best herd young All Red Polls, comprising 1 bull and 4 heifers; owned by exhibitor; J. H. Miller, Mexico, Ind	45 00

CLASS XVIII—Herefords.

BULLS.

3 years old and over, Sampson No. 35781; American Hereford Register; calved April 10, 1889; sired by Blaine No. 27375; dam Electa, by Lord Burlington No. 5583; bred by C. J. S. Kumler, Peru, Ind.; owned and exhibited by Benj. M. Allen, Greenville, O.	20 00
Second, Hero No. 4352; American Hereford Register; calved June 27, 1879; sired by Regulus No. 3849; dam Spot, by Horace 2d No. 4358; bred by J. Price, Count House, Painbridge, Eng.; owned and exhibited by Benj. M. Allen, Greenville, O	10 00
Under 1 year, Ranchman 2d, No. 50025; American Hereford Register; calved October 2, 1892; sired by Ranchman No. 38189; dam Lucky Maid No. 13044, by Irvington No. 4056; bred by Benj. M. Allen, Greenville, O.; owned and exhibited by Benj. M. Allen	15 00

Second, Earl of Maplewood No. 50030; American Hereford Register; calved October 5, 1892; sired by Hero No. 4352; dam Tony, by Hero No. 4352; bred by Thos. J. Broner, Roann, Ind.; owned and exhibited by Benj. M. Allen, Greenville, O	$10 00

COWS.

3 years old and over, Daisy No. 35776; American Hereford Register; calved July 18, 1888; sired by Sir Bastle 1st, No. 27376; dam Graceful No. 13248, by Tilbert 13255; bred by J. S. Cumler, Peru, Ind.; owned and exhibited by Benj. M. Allen, Greenville, O	20 00
Second, Tony No. 28564; American Hereford Register; calved June 9, 1886; sired by Hero No. 4352; dam Lillian 2d, by Treasure No. 8236; bred by G. S. Cloyd, Ithaca, Ohio; owned and exhibited by Benj. M. Allen, Greenville, O	10 00
2 years old and under 3, Pink No. 45340; American Hereford Register; calved February 15, 1891; sired by Hero No. 4352; dam Daisy, by Sir Bastle 1st, No. 27376; bred by J. S. Broner, Roann, Ind.; owned and exhibited by Benj. M. Allen, Greenville, O	20 00
Second, Nellie Bly No. 45339; American Hereford Register; calved June 16, 1891; sired by Hero No. 4352; dam Tony, by Hero No. 4352; bred by T. J. Broner, Roann, Ind.; owned and exhibited by Benj. M. Allen, Greenville, O	10 00
1 year old and under 2, Slice; American Hereford Register; calved April 16, 1891; sired by Hero No. 4352; dam Fern, by Hanen No. 19783; bred by T. J. Broner, Roann, Ind.; owned and exhibited by Benj. M. Allen, Greenville, O	20 00
Second, Priscilla No. 50033; American Hereford Register; calved September 16, 1892; sired by Hero No. 4352; dam Graceful, by Filbert No. 13255; bred by T. J. Broner, Roann, Ind.; owned and exhibited by Benj. M. Allen, Greenville, Ohio	10 00

HERDS.

Best herd Herefords, comprising 1 bull and 5 cows over 2 years old, owned by the exhibitor	
Benj. M. Allen, Greenville, O	60 00
Second, Benj. M. Allen, Greenville, O	40 00
Best young herd Herefords, comprising 1 bull and 4 heifers, under 2 years old; owned by exhibitor, Benj. M. Allen, Greenville, O	45 00

CLASS XIX—Polled Angus.

BULLS.

3 years old and over; Black Monk No. 13214; American Aberdeen Angus Herd Book; calved December 15, 1889; sired by Abbotsford No. 2702; dam Black Bird 4th, by St. Clair No. 693; bred by John Goodwin, Chicago, Ill.; owned and exhibited by Goodwin & Judy, West Lebanon, Ind.	20 00

Second, Zaire 5th, No. 13067; American Aberdeen Angus Herd Book; calved November 29, 1889; sired by Black Abbot No. 10423 dam Zarilda 2d, by Rougemont No. 2252; bred by J. S. Goodwin, Chicago; owned and exhibited by D. Bradfute & Son, Cedarville, O	$10 00
2 years old and under 3; Bruce of Meadow Brook No. 15696; American Aberdeen Angus Herd Book; calved July 2, 1891; sired by Don Cameron No. 6295; dam Blue Bell of Haughton 10th, by Arbiter of Glenberg No. 6061; bred by D. Bradfute & Son, Cedarville, O.; owned and exhibited by D. Bradfute & Son, Cedarville, O	
1 year old and under 2; Cecil of Meadow Brook No. 15694; American Aberdeen Angus Herd Book; calved March 10, 1892; sired by Black Knight No. 4751; dam Superior Chloe, by Superior of Bli-Blo No. 4867; bred by T. W. Harvey, Turlington, Neb.; owned and exhibited by D. Bradfute & Son, Cedarville, O.	20 00
Second, Black C. No. 18482; American Aberdeen Angus Herd Book; calved September 12, 1892; sired by Erica Chieftain 15498; dam Blackbird of Coiskie 4th, by Erroll No. 7474; bred by John Goodwin, Chicago; owned and exhibited by Goodwin & Judy, West Lebanon, Ind	10 00
Under 1 year, Zara 8th, No. 18484; American Aberdeen Angus Herd Book; calved October 18, 1892; sired by Black Monk No. 13214; dam Zarildee 2d, by Rougemont No. 2282; bred by John Goodwin, Chicago; owned and exhibited by Goodwin & Judy, West Lebanon, Ind	15 00
Second, Brave of Meadow Brook No. 18245; American Aberdeen Angus Herd Book; calved October 29, 1892; sired by Zaire 5th, No. 13067; dam Blue Bell of Houghton 18th, by Arbiter of Glenburg No. 6061; bred by D. Bradfute & Son, Cedarville, O.; owned and exhibited by D. Bradfute & Son, Cedarville, Ohio	10 00

COWS.

3 years and over, Bonny Maid No. 6937; American Aberdeen Angus Herd Book; calved March 26, 1886; sired by Lord Hillhurst No. 3990; dam Bonny Bee, by B. O. Gight No. 3295; bred by H. M. Cochrane, Hillhurst, Canada; owned and exhibited by Goodwin & Judy, West Lebanon, Ind	20 00
Second, Knight's Black Beauty No. 10470; American Aberdeen Angus Herd Book; calved March 21, 1888; sired by Black Knight No. 7751; dam Beauty 2d, of Glausis No. 4667, by Elcho No. 527; bred by T. W. Harvey, Turlington, Neb.; owned and exhibited by Bradfute & Son, West Lebanon, Ind	10 00
2 years old and under 3, Rosebud Theta No. 14464; American Aberdeen Angus Herd Book; calved October 22, 1890; sired by Energy of Ballindalloch No. 7796; dam Rosebud Delta, by Abbotsford No. 2782; bred by John Goodwin, Chicago; owned and exhibited by Goodwin & Judy, West Lebanen, Ind.	20 00

Second, Lavender of Meadow Brook No. 15697; American Aberdeen Angus Herd Book; calved August 15, 1891; sired by Don Cameron No. 6295; dam Lovelock 4th, by Gight 3d, No. 6042; bred by D. Bradfute & Son, Cedarville, O.; owned and exhibited by D. Bradfute & Son, Cedarville, O.	$10 00
1 year old and under 2, Zera 4th, No. 15492; American Aberdeen Angus Herd Book; calved November 3, 1891; sired by Abbotsford No. 2702; dam Zarildee 2d, by Rougemont No. 2252; bred by John Goodwin, Chicago; owned and exhibited by Goodwin & Judy, West Lebanon, Ind.	20 00
Second, Primrose of Evergreen No. 16970; American Aberdeen Angus Herd Book; calved November 25, 1891; sired by Good Advocate No. 6954; dam Primrose of Hillhurst No. 3990; bred by H. M. Cochrane, Hillhurst, Canada; owned and exhibited by Goodwin & Judy, West Lebanon, Ind.	10 00
Under 1 year, Emily 10th, No. 18491; American Aberdeen Angus Herd Book; calved October 7, 1892; sired by Abbottsford No. 2702; dam Emily 9th, by Baron Balgersho No. 1676; bred by Goodwin & Judy, West Lebanon; owned and exhibited by Goodwin & Judy, West Lebanon	15 00
Second, Bess of Meadow Brook No. 18243; American Aberdeen Angus Herd Book; calved October 5, 1892; sired by Don Cameron No. 6295; dam Bettina, by Earl of Erie, No. 1982; bred by D. Bradfute & Son, Cedarville, Ohio; owned and exhibited by D. Bradfute & Son, Cedarville, Ohio	10 00

HERDS.

Best herd Polled Angus, comprising 1 bull and 5 cows over 2 years old, owned by exhibitor, Goodwin & Judy, West Lebanon, Ind	60 00
Second, D. Bradfute & Son, Cedarville, Ohio	40 00
Best young herd Polled Angus, comprising 1 bull and 4 heifers under 2 years old, owned by exhibitor, Goodwin & Judy, West Lebanon, Ind.	45 00
Second, D. Bradfute & Son, Cedarville, Ohio	30 00

CLASS XX—Galloways.

BULLS.

3 years old and over, Kekronga No. 2894, American Galloway Association; calved March 25, 1886; sired by Forest King of the Green No. 3615; Dam Queen Mary 2d of Breconhill, by Councillor of Breconhill No. 1767; bred by C. Graham, Breconhill, Scotland; owned and exhibited by Brookside Farm Co., Ft. Wayne, Ind	20 00
Second, Lynes 1st, No. 6541, American Galloway Association; calved August 17, 1889; sired by Anthony Wayne No. 4102, dam Edith of Lynes, by Malcolm of Lynes No. 3260; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne, Ind	10 00

2 years old and under 3, Bob Beaty No. 7809, American Galloway Association; calved November 15, 1890; sired by Roger of Oakbank No. 3843; dam Agnes of Brookside, by Weaver Boy 2d, No. 2016; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne, Ind.	$20 00
Second, G. W. Gillman, Winchester, Ind	10 00
1 year old and under 2, Sir Edwin Arnold No. 8814; American Galloway Association; calved September 29, 1891; sired by Roger of Oakbank No. 3843; dam Julia of Castlemilk, by Jim of Kirkhill No. 1889; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne	20 00
Second, Glenmorgan No. 8731; American Galloway Association; calved November 10, 1891; sired by Bob Smith No. 6546; dam Katie A. 1st, of Ft. Wayne, by Cleveland 3d, No. 4105; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne, Ind	10 00
Under 1 year, Real McKay No. 10325; American Galloway Association; calved March 2, 1893; sired by Topsman of Brookside No. 4685; dam, Balij Lucy A., by Roger of Oakbank No. 3843; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne.	15 00
Second, Cleveland G. 6th, No. 9654; American Galloway Association; calved October 10, 1892; sired by Roger of Oakbank, No. 3843; dam Balij Lucy 10th, by Chelmsford No. 1568; bred by Brookside Farm Co., Ft. Wayne; owned and exhibited by Brookside Farm Co, Ft. Wayne	10 00

COWS.

3 years and over, Juliet of Brookside No. 5292; American Galloway Association; calved May 10, 1888; sired by Roger of Oakbank No. 3843; dam Julia of Castlemilk, by Jim of Kirkhill No. 1889; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne	20 00
Second, Balij Lucy 10th, No. 2363; American Galloway Association; calved January 29, 1883; sired by Chelmsford No. 1568; dam Lucy of Balis 9th, by Duke of Edinburgh No. 1417; bred by W. I. Sherman, Kirkenbright, Scotland; owned and exhibited by Brookside Farm Co., Ft. Wayne.	10 00
2 years old and under 3, Julia 1st of Brookside No. 7824, American Galloway Association; calved October 27, 1890; sired by Roger of Oakbank No. 3843; dam Julia of Castlemilk, by Jim of Kirkhill No. 1889; bred by Brookside Farm Co., Ft. Wayne; owned and exhibited by Brookside Farm Co., Ft. Wayne	20 00

Second, Baliz Lucy 12th No. 7823, American Galloway Association; calved October 19, 1890; sired by Roger of Oakbank No. 3843; dam Lucy of Baliz 9th, by Duke of Edinburgh No. 1417; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne	$10 00
1 year old and under 2, Baliz Lucy A 2nd, No. 9660, American Galloway Association; calved February 10, 1892; sired by Topsman of Brookside No. 4685; dam Baliz Lucy A, by Roger of Oakbank No. 3843; bred by Brookside Farm Co., Ft. Wayne; owned and exhibited by Brookside Farm Co., Ft. Wayne	20 00
Second, Minnie B. 4th, No. 8753, American Galloway Association; calved November 18, 1891; sired by Roger of Oakbank No. 3843; dam Minnie 2nd of Fingland Rijj, by Tom King of Pedderhill No. 2077; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne, Ind.	10 00
Under 1 year, Julia 3d of Brookside No. 9664, American Galloway Association; calved October 5, 1892; sired by Roger of Oakbank No. 3843; dam Julia of Castlemilk, by Jim of Kirkhill No. 1889; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne	15 00
Second, Baliz Blackie 20th, No. 9565, American Galloway Association; calved October 6th, 1892; sired by Topsman of Brookside No. 4685; dam Blackie 12th, by Duke of Drumlaurig No. 667; bred by Brookside Farm Co., Ft. Wayne, Ind.; owned and exhibited by Brookside Farm Co., Ft. Wayne	10 00

HERDS.

Best herd Galloways, comprising 1 bull and 5 cows over 2 years old, owned by exhibitor, Brookside Farm Co., Ft. Wayne	60 00
Second, Brookside Farm Co., Ft. Wayne	40 00
Best young herd Galloways, comprising one bull and 4 heifers under 2 years old, owned by exhibitor, Brookside Farm Co., Ft. Wayne, Ind.	45 00
Second, G. W. Gillman, Winchester, Ind	30 00

DAIRY BREEDS.

CLASS XXI—Holstein-Friesans.

BULLS.

3 years old and over, Le Ron No. 4325; Holstein-Friesan Herd Book, 7 years; sired by Dago No. 3753; dam Loakfoma No. 7563, breeding unknown; bred by S. W. Dungan, Franklin; owned and exhibited by G. A. Stanton, Greenwood	$20 00

Second, Jeddo No. 17479; Holstein-Friesan Herd Book; calved July 10, 1890; sired by Wilses No. 688; dam Tacey, breeding unknown; bred by Enos Hayes, Cleveland, Ohio; owned and exhibited by W. H. LaGrange & Son, Franklin	$10 00
2 years old and under 3, Ira E. No. 19111; Holstein-Friesan Herd Book; sired by De Vries 2d's Victor No. 6124; dam Delaine Abbekerk 2d No. 12694; bred by S. W. Dungan, Franklin; owned and exhibited by W. H. LaGrange & Son, Franklin, Ind	20 00
1 year and under 2, Le Ron's Sir Knight; Holstein-Friesan Herd Book; age 18 months; sired by Le Ron No. 4325; dam Hazel Rosamond by Beadley's Promotor; imported; bred by G. A. Stanton, Greenwood; owned and exhibited by G. A. Stanton, Greenwood	20 00
Second, Signet's Gem No. 125; Western Holstein-Friesan Herd Book; sired by Royal Signet No. 15716; dam Cora Mater, breeding unknown; bred by S. W. Dungan, Franklin; owned and exhibited by W. H. LaGrange, Franklin	10 00
Under 1 year, Nahe's 2d Captain; Holstein-Friesan Herd Book; age 3 months; sired by Le Ron No. 4325; dam Nahe 2d by Klaas Deker; imported; bred by G. A. Stanton, Greenwood, Ind.; owned and exhibited by G. A. Stanton, Greenwood	15 00
Second, Charley Kurtze, calved November 28, 1892; sired by Jeddo No. 17479; dam Delaware Castine, by Castine 2d's Prince No. 10716; bred by W H. LaGrange & Son, Franklin; owned and exhibited by W. H. LaGrange & Son, Greenwood	10 00

COWS AND HEIFERS.

3 years and over, Forest Maid No. 4421; Holstein-Friesan Herd Book; age 8 years; imported; bred in Holland; owned and exhibited by G. A. Stanton, Greenwood, Ind	20 00
Second, Hazel Rosamond No. 7674; American Holstein-Friesan Herd Book; age 5 years; sired by Bradley's Promotor; dam Prince of Twisk's Amanda by Prince of Twisk No. 1055; bred by J. W. Stillwell & Co., Troy, Ohio; owned and exhibited by G. A. Stanton, Greenwood	10 00
2 years old and under 3, Luthilde No. 215; Western Holstein-Friesan Herd Book; calved December 29, 1890; sired by Sir Erix Clothilde No. 10811; dam Louverse, breeding unknown; bred by Geo. F. Read, New York City; owned and exhibited by W. H. LaGrange & Son, Franklin	20 00
Second, Cheery Queen No. 26325; Holstein-Friesan Herd Book; calved June 9, 1891; sired by Castine 2d's Prince No. 10716; dam Good Cheer; breeding unknown; bred by O. & T. J. Williamson, Muncie, Ind., owned and exhibited by W. A. LaGrange & Son, Franklin	10 00

1 year and under 2, Polly Morgan No. 216; Western Holstein-Friesan Herd Book; calved October 2, 1891; sired by Yakimakey's Caleb No. 13535; dam Perl Morgan, breeding unknown; bred by W. H. LaGrange & Son, Franklin; owned and exhibited by W. H. LaGrange & Son, Granklin	$20 00
Second, W. H. LaGrange & Son, Franklin	10 00
Under 1 year, Queen Victoria; calved March 21, 1893; sired by Jeddo, No. 17479, dam Sabta's Victoria, by DeVries 2d's Victor No. 6124; bred by W. H. LaGrange, Franklin; owned and exhibited by W. H. LaGrange, Franklin	15 00
Second, Forest Maid 2d; Holstein-Friesan Herd Book; age, 9 months; sired by Le Ron No. 4325; dam Forest Maid, imported; Bred by G. A. Stanton, Greenwood; owned and exhibited by G. A. Stanton, Greenwood	10 00
Best herd Holstein-Friesans; comprising 1 bull and 5 cows over 2 years old, owned by exhibitor, W. H. LaGrange, Franklin.	60 00
Second, G. A. Stanton, Greenwood	40 00
Best young herd Holstein-Friesans, comprising 1 bull and 4 heifers under 2 years, owned by exhibitor, W. H. LaGrange & Son, Franklin	45 00
Second, G. A. Stanton, Greenwood	30 00

CLASS XXII—Ayrshires.

BULLS.

3 years old and over, Tallahassa No. 4141; American Ayrshire Herd Book; calved April 11, 1886; sired by Red Bill No. 3759; dam Alline Douglass 2d, by Nick Brown No. 2869; bred by J. P. Beatty, Pataskala, O; owned and exhibited by J. P. Beatty, Pataskala, O	20 00
2 years old and under 3, Dixie No. 5094; American Ayrshire Herd Book; calved November 10, 1890; sired by Tallahassa No. 4141; dam Flurette, by King Dick No. 3881; bred by J. P. Beatty, Pataskala, O.; owned and exhibited by J. P. Beatty, Pataskala, O	20 00
1 year old and under 2; Bingo No. 8450; American Ayrshire Herd Book; calved October 23, 1891; sired by Tallahassa No. 4141; dam Cleopatra; breeding unknown; bred by J. P. Beatty, Pataskala, O.; owened and exhibited by J. P. Beatty, Pataskala, O	20 00
Under 1 year; Ben Davis No. 5413; American Ayrshire Herd Book; calved September 21, 1892; sired by Tallahassa No. 4141; dam Kluck, by Tallahassa No. 4141; bred by J. P. Beatty, Pataskala, O.; owned and exhibited by J. P. Beatty, Pataskala, O	15 00
Second, Jo-Jo No 5414; American Ayrshire Herd Book; calved April 15, 1893; sired by Tallahassa No. 4141; dam Queen Josie; breeding unknown; bred by J. P. Beatty, Pataskala, O.; owned and exhibited by J. P. Beatty, Pataskala, O	10 00

COWS AND HEIFERS

3 years old and over, Hillside Maid No. 8450; American Ayrshire Herd Book; calved August 9, 1889; sired by Peerless No. 2868; dam Hester 7th, by Enoch Douglass No. 2001; bred by P. H. Brown, Providence, R. I.; owned and exhibited by J. P. Beatty, Pataskala, O.	$20 00
Second, Lady Jewess 2d, No. 8979; American Ayrshire Herd Book; calved June 13, 1886; sired by Red Skin No. 3739; dam Lady Jewess, by McDuff Orrvel No. 2488; bred by J. P. Beatty, Pataskala, O.; owned and exhibited by J. P. Beatty, Pataskala, O.	10 00
2 years old and under 3, Dora of Pataskala, No. 11636; American Ayrshire Herd Book; calved June 10, 1891; sired by Tallahassa No. 4141; dam Alline Douglass, by Nick Brown No. 2869; bred by J. P. Beatty, Pataskala, O.; owned and exhibited by J. P. Beatty, Pataskala, O.	20 00
Second, Hillside Maid 4th, No. 11365; American Ayrshire Herd Book; calved September 16, 1893; sired by Tallahassa No. 4141; dam Hillside Maid, by Peerless No. 2868; bred by J. P. Beatty, Pataskala, O.; owned and exhibited by J. P. Beatty, Pataskala, O.	10 00
1 year old and under 2, Hester Maid No. 11625; American Ayrshire Herd Book; calved November 19, 1891; sired by Tallahassa No. 4141; dam Hester 8th, by Lord Lion No. 691; bred by J. P. Beatty, Pataskala, O.; owned and exhibited by J. P. Beatty, Pataskala, O.	20 00
Second, Querie 2d, No. 12150; American Ayrshire Herd Book; calved November 12, 1891; sired by Tallahassa No 4141; dam Querie, by Macaboy No. 2745; bred by J. P. Beatty, Pataskala, O.; owned and exhibited by J. P. Beatty, Pataskala, O	10 00
Under 1 year, Lora Lee, No. 12152; American Ayrshire Herd Book; calved December 8, 1892; sired by Tallahassa No. 4141; dam Pride of Manten (breeding unknown); bred by J. P. Beatty, Pataskala, O.; owned and exhibited by J. P. Beatty, Pataskala, O	15 00
Second, Vura No. 12151; American Ayrshire Herd Book; calved October 12, 1892; sired by Tallahassa No. 4141; dam Hillside Maid 3d, by Tallahassa No. 4141; bred by J. P. Beatty, Pataskala, O.; owned and exhibited by J. P. Beatty, Pataskala, O	10 00
Best herd Ayrshires, comprising 1 bull and 5 cows, 2 years old and over; owned by exhibitor; J. P. Beatty, Pataskala, O	60 00
Best herd young Ayrshires, comprising 1 bull and 4 heifers, under 2 years old; owned by exhibitor; J. P. Beatty, Pataskala, O.	45 00

CLASS XXIII—Jerseys.

BULLS.

3 years old and over, H. H. Wheatcraft, Indianapolis	20 00
Second, A. T. Dempsey, Columbus O.	10 00
2 years old and under 3, A. T. Dempsey, Columbus, O	20 00
Second, Garretson Bros., Pendleton, Ind	10 00

1 year old and under 2, A. T. Dempsey, Columbus, O	$20 00
Second, Garretson Bros, Pendleton, Ind	10 00
Under 1 year, H. H. Wheatcraft, Indianapolis	15 00
Second, Rajah Blue Jim No 36022; American Jersey Cattle Club Herd Register; calved March 29, 1893; sired by Blue Jim Pogis No. 20803; dam Lady Rajah Pogis; bred by Peter Raab, Brightwood; owned and exhibited by Peter Raab, Brightwood, Ind	10 00

COWS AND HEIFERS.

3 years and over, A. T. Dempsey, Columbus, O	20 00
Second, Garretson Bros., Pendleton	10 00
2 years old and under 3, Garretson Bros., Pendleton	20 00
Second, A. T. Dempsey, Columbus, O.	10 00
1 year old and under 2, Garretson Bros., Pendleton	20 00
Second, A. T. Dempsey, Columbus, O.	10 00
Under 1 year, A. T. Dempsey, Columbus, O.	15 00
Second, A. T. Dempsey, Columbus, O.	10 00

HERDS.

Best herd Jerseys, comprising 1 bull and 5 cows, 2 years old and over, owned by exhibitor, H. H. Wheatcraft, Indianapolis.	60 00
Second, A. T. Dempsey, Columbus, O.	40 00
Best young herd Jerseys, comprising 1 bull and 4 heifers under 2 years old, owned by exhibitor, A. T. Dempsey, Columbus, O	45 00
Second, H. H. Wheatcraft, Indianapolis	30 00

BUTTER COW.

Best butter cow, any age or breed, to be tested two milkings by the Babcock tester under the direction of the Superintendent of the department. Hillside Maid No. 8450; American Ayrshire Herd Book; calved August 9, 1884; sired by Peerless No. 2868; dam, Hester 7th by Enoch Douglass No. 2001. Bred by C. H. Brown, Providence, R. I; owned and exhibited by J. P. Beatty, Pataskala, Ohio	25 00

SHEEP.

CLASS XXV—Fine Wool Sheep.

(To include American, Spanish and French Merinos.)

RAMS.

2 years old and over, King's Logan; Vermont Merino Register; lambed April 20, 1890; sired by Logan No. 42, sire of dam of Farnham's Banker No. 600; bred by E. G. Farnham, West Cornwall, Vt.; owned and exhibited by E. D. King, Burlington, Kas	$12 00

Second, Buck No. 335; Vermont Register and Standard Register; lambed April, 1888; sire of dam Gladstone No. 106; bred by H. C. Burwell, Bridport, Vt.; owned and exhibited by E. D. King, Burlington, Kas.	$6 00
1 year old and under 2, Young Logan No. 305; Vermont Register; lambed April, 1892; sired by Logan No. 42, sire of dam Zariff No. 1747; Bred by H. V. Pugsly, Plattsburg, Mo.; owned and exhibited by E. D. King, Burlington, Kas	12 00
Second, R. D. Williamson, Xenia, O	6 00
Lamb, Uriah Cook, W. Mansfield, O	12 00
Second, R. D. Williamson, Xenia, O	6 00

EWES.

Pen of 2, 2 years old and over, R. D. Williamson, Xenia, O	12 00
Second, Uriah Cook, W. Mansfield, O	6 00
Pen of 2 ewes, 1 year old and under 2, E. D. King, Burlington, Kas.	12 00
Second, Uriah Cook, W. Mansfield, O	6 00
Pen of 2 ewe lambs, E. D. King, Burlington, Kas	12 00
Second, R. D. Williamson, Xenia, O	6 00

FLOCKS.

1 ram and 5 of his get, the get to be 1 year old or under, bred and owned by the exhibitor, E. D. King, Burlington, Kas	20 00
Second, Uriah Cook, W. Mansfield. O	10 00
1 ram any age, 2 ewes 2 years old and over, 2 ewes 1 year old and under 2, and 2 ewe lambs; E. D. King, Burlington, Kas	20 00
Second, R. D. Williamson, Xenia, O	10 00

CLASS XXVI—Long-Wool Sheep—Cotswolds.

RAMS.

2 years old and over, Earl Corlton No. 5919; Cotswold Register; lambed in the spring of 1891; bred by J. C. Snell & Son, Edmonton, Ont.; owned and exhibited by W. W. Wilson & Bro., Muncie, Ind	12 00
Second, D. B. & R. C. Watt, Xenia, O	6 00
1 year and under 2, Vice Consul No. 628; Cotswold Register; lambed in the spring of 1892; sired by Royal Commander No. 5394; dam Queen; breeding unknown; bred by J. C. Snell & Son, Edmonton, Ont.; owned and exhibited by W. W. Wilson & Bro. Muncie, Ind.	12 00
Second, J. H. Woodford, Paris, Ky	6 00
Lamb, J. H. Woodford, Paris, Ky	12 00
Second, J. H. Woodford, Paris, Ky	6 00

EWES.

Pen of 2, 2 years old or over, D. B. & R. C. Watt, Xenia, O.	$12 00
Second, W. W. Wilson & Bros., Muncie, Ind	6 00
Pen of 2, 1 year old and under 2, J. H. Woodford, Paris, Ky	12 00
Second, W. W. Wilson & Bros, Muncie, Ind	6 00
Pen of 2 lambs, J. H. Woodford, Paris, Ky	12 00
Second, W. W. Wilson & Bros., Muncie, Ind	6 00

FLOCKS.

1 ram and 5 of his get, the get to be 1 year old or under, and bred and owned by the exhibitor, W. W. Wilson & Bros., Muncie, Ind	20 00
Second, D. B. & R. C. Watt, Xenia, O	10 00
1 ram any age, 2 ewes 2 years old and over, 2 ewes 1 year old and under 2, and 2 ewe lambs, J. H. Woodford, Paris, Ky	20 00
Second, D. B. & R. C. Watt, Xenia, O.	10 00

CLASS XXVIII—Oxfordshires.

RAMS.

2 years old and over, What's Wanted No. 1748, A. O. D. R. Association, age 5 years; sired by Adams; owned and exhibited by Sid Conger, Flat Rock, Ind.	12 00
Second, Uriah Cook, West Mansfield, O.	6 00
1 year old and under 2, Huntsman No. 7474, A. O. D. R. Association; lambed March 8, 1892; sired by Broadstone No. 829; bred by Barnett, England; owned and exhibited by Jno. C. Williamson, Xenia, Ohio	12 00
Second, White Ear No. 8011, A. O. D. R. Association, age 16 months; sired by White Foot No. 1341; dam Treadwell; owned and exhibited by Sid Conger, Flat Rock, Ind.	6 00
Lamb, Baker No. 7476, A. O. D. R Association, age 7 months; sired by Samson No. 1255; owned and exhibited by Sid Conger, Flat Rock, Ind	12 00
Second, Jno. C. Williamson, Xenia, O	6 00

EWES.

Pen of 2, 2 years old or over, Sid Conger, Flat Rock	12 00
Second, Jno. C. Williamson, Xenia, O	6 00
Pen of 2, 1 year old and under 2, Sid Conger, Flat Rock	12 00
Second, Jno. C. Williamson, Xenia, O	6 00
Pen of 2 ewe lambs, Sid Conger, Flat Rock	12 00
Second, Jno. C. Williamson, Xenia, O	6 00

FLOCKS.

1 ram and 5 of his get, the get to be 1 year old or under, bred and owned by exhibitor, Sid Conger, Flat Rock	$20 00
Second, John C. Williamson, Xenia, Ohio	10 00
1 ram any age, 2 ewes 2 years old and over, 2 ewes 1 year old and under 2, and 2 ewe lambs, Sid. Conger, Flat Rock, Ind.	20 00
Second, John C. Williamson, Xenia, Ohio	10 00

CLASS XXIX—Shropshires.

RAMS.

2 years old and over, George Allen, Allerban, Ill	12 00
Second, Proud King No. 41308; American Shropshire Sheep Register Association; lambed in 1890; sired by Forest King No. 8980; dam Tanner Ewe, by The Rector No. 1769; bred by Alfred Tanner, Eng.; owned and exhibited by I. J. Williams & Sons, Muncie, Ind	6 00
1 year old and under 2, T. B. Bennington, Grafton, O	12 00
Second, George Allen, Allerban, Ill	6 00
Lamb, Columbian No. 57013; American Shropshire Register; lambed in the spring of 1892; sired by Proud King No. 41308; dam Williams, by Lord Newcastle No. 3598; bred by I. J. Williams & Sons; owned and exhibited by I. J. Williams & Sons, Muncie, Ind	12 00
Second, Columbian 2d, No. 57014; American Shropshire Register; lambed February, 1893; sired by Proud King No. 41308; dam Williams, by Sanguanity; bred by I. J. Williams & Sons, Muncie, Ind.; owned and exhibited by I. J. Williams & Sons, Muncie, Ind	6 00

EWES.

Pen of 2, 2 years old or over, I. J. Williams & Sons, Muncie	12 00
Second, George Allen, Allerban, Ill	6 00
Pen of 2, 1 year old and under 2, I. J. Williams & Son, Muncie, Ind	12 00
Second, I. J. Williams & Sons, Muncie	6 00
Pen of 2 ewe lambs, George Allen, Allerban, Ill	12 00
Second, I. J. Williams & Sons	6 00

FLOCKS.

1 ram and 5 of his get, the get to be 1 year old or under; bred and owned by exhibitor I. J. Williams & Sons, Muncie, Ind	20 00
Second, Geo. Allen, Allerban, Ill.	10 00
1 ram any age, 2 ewes 2 years old and over, 2 ewes 1 year old and under 2, and 2 ewe lambs; Geo. Allen, Allerban, Ill.	20 00
Second, I. J. Williams & Sons, Muncie	10 00

CLASS XXX—Hampshire Downs.

RAMS.

2 years old and over; Doncaster No. 576; Hampshire Down Breeders Association of America; age, 2 years 8 months; sired by Benedict No. 246; bred by Henry Lambert, Eng.; owned and exhibited by Jno. I. Gordon, Mercer, Pa	$12 00
Second, E. R. Crawford, Reading, Mich.	6 00
1 year old and under 2; Courtland & Co., Marshall, Mich	12 00
Second, Courtland & Co., Marshall, Mich.	6 00
Lamb, Courtland & Co., Marshall, Mich	12 00
Second, Gordon's 94 No. 577, Hampshire Down Breeders Association of America; age, 7 months; sired by Fowler; bred by James Flower, England; owned and exhibited by Jno. I. Gordon, Mercer, Pa	6 00

EWES.

Pen of 2, 2 years old or over, Jno. I. Gordon, Mercer, Pa.	12 00
Second, Jno. I. Gordon, Mercer, Pa	6 00
Pen of 2, 1 year old and under 2, Courtland & Co., Marshall, Mich	12 00
Second, Courtland & Co., Msrshall, Mich.	6 00
Pen of 2 lambs, Courtland & Co., Marshall, Mich	12 00
Second, Frank Cassady, Indianapolis	6 00

FLOCKS

1 ram and 5 of his get, the get to be 2 years old or under; bred and owned by the exhibitor, E. R. Crawford, Reading, Mich	20 00
Second, Frank Cassidy, Indianapolis	10 00
1 ram, any age, 2 ewes 2 years old and over, 2 ewes 1 year old and under 2, and 2 ewe lambs; Courtland & Co., Marshall, Mich	20 00
Second, John I. Gordon, Mercer, Pa	10 00

CLASS XXXI—Southdowns.

RAMS.

2 years and over, T. B. Bennington, Grafton, Ohio	12 00
Second, Privett Bros., Greensburg, Ind	6 00
1 year old and under 2, T. B. Bennington, Grafton, Ohio	12 00
Second, Privett Bros., Greensburg, Ind	6 00
Lamb, T. B. Bennington, Grafton, Ohio	12 00
Second, Privett Bros., Greensburg, Ind	6 00

EWES.

Pen of two, 2 years old and over, T. B. Bennington, Grafton, Ohio	$12 00
Second, W. W. Wilson & Bros., Muncie	6 00
Pen of two, 1 year and under 2, Privett Bros., Greensburg	12 00
Second, Privett Bros., Greensburg	6 00
Pen of two lambs, Privett Bros., Greensburg	12 00
Second. W. W. Wilson & Bros., Muncie	6 00

FLOCKS.

1 ram and 5 of his get, the get to be 2 years old and under, bred and owned by exhibitors, Privett Bros., Greensburg	20 00
Second, W. W. Wilson & Bros., Muncie	10 00
1 ram, any age, two ewes 2 years old and over, 2 ewes 1 year old and under 2, and 2 ewe lambs, Privett Bros., Greensburg	20 00
Second, W. W. Wilson & Bros., Muncie	10 00

HOGS.

CLASS XXXII—Berkshires.

BOARS.

2 years old and over, Jasper Heck, Waldron	$12 00
Second, King of Homestead No. 27893; American Berkshire Association; farrowed April 2, 1891; sired by Low Down No. 22924; dam Homestead Queen, by Sambo 2d, No. 16453; bred by Geo. L. and O. P. Wolcott, Conover, O.; owned and exhibited by E. V. Walborn, Van Wert, O.	6 00
1 year old and under 2, Victor Duke 2d, No. 29396; American Record Association; farrowed May 4, 1892; sired by Victor Duke No. 25715; dam Lady Lee 14th, by Black Duke No. 23848; bred by N. H. Gentry, Sedalia, Mo.; owned and exhibited by E. V. Walborn, Van Wert, O.	10 00
Second, Ben Harrison No. 311; National Berkshire Record; farrowed April 16, 1892; sired by Ben Hur 2d, No. 26771; dam Topsy, by Sterling No. 10217; bred by W. G. Riley, Thorntown, Ind.; owned and exhibited by W. G. Riley, Thorntown, Ind.	5 00
Under 12 and over 6 months, Champion No. 361; National Berkshire Record; farrowed March 11, 1893; sired by Columbus No. 28701; dam Lucy 3d, by Count Bruno No. 14554; bred by W. G. Riley, Thorntown	8 00
Second, Jasper Heck, Waldron, Ind.	4 00

Under 6 and over 3 months, Best on Earth No. 369; National Berkshire Association; farrowed April 7, 1893; sired by Columbus No. 28701; dam Darkness, by Ben Hur No. 19756; bred by W. G. Riley, Thorntown, Ind.; owned and exhibited by W. G. Riley, Thorntown	$5 00
Second, One Price No. 249; National Berkshire Record; farrowed April 7, 1893; sired by Columbus No. 28701; dam Darkness, by Ben Hur No. 19756; bred by W. G. Riley, Thorntown, Ind.; owned and exhibited by W. G. Riley, Thorntown, Ind.	3 00

SOWS.

2 years old and over, Van Wert Beauty 2d, No. 29389; American Berkshire Association; farrowed June 17, 1891; sired by Charmer's Duke 18th, No. 19941; dam Van Wert Beauty, by Black Donald No. 17008; bred by E. V. Walborn, Van Wert, O.; owned and exhibited by E. V. Walborn, Van Wert, O	12 00
Second, Maud S. No. 933; American Berkshire Record; farrowed April, 1889; sired by Count Bruno; dam, Queen Anne, by Dandy No. 17941; bred by W. A. Haworth, Thorntown; owned and exhibited by W. G. Riley, Thorntown, Ind.	6 00
1 year old and under 2, Charmer's Beauty No. 29393; American Berkshire Association; farrowed March 18, 1892; sired by Charmer's Duke 18th, No. 19941; dam, Van Wert Beauty, by Black Donald No. 17008; bred by E. V. Walborn, Van Wert, O.; owned and exhibited by E. V. Walborn, Van Wert, O	10 00
Second, Lady Lee No. 946; National Berkshire Record; farrowed July 10, 1892; sired by Victor Duke No. 25715; dam, Lady Lee, by Model Duke No. 17397; bred by N. H. Gentry, Sedalia, Mo.; owned and exhibited by W. G. Riley, Thorntown, Ind	5 00
Under 12 and over 6 months, Jasper Heck, Waldron, Ind.	
Second, Lady Beauty No. 30544; American Berkshire Association; farrowed October 3, 1892; sired by Charmer's Duke 18th, No. 19941; dam, Van Wert Beauty, by Black Donald No. 17008; bred by E. V. Walborn, Van Wert, O.; owned and exhibited by E. V. Walborn, Van Wert, O	4 00
Under 6 and over 3 months, Elmie No. 654, National Berkshire Record; farrowed April 7, 1893; sired by Columbus, No. 28701; dam, Darkness by Ben Hur, No. 19756; bred by W. G. Riley, Thorntown, Ind.; owned and exhibited by W. G. Riley, Thorntown, Ind.	5 00
Second, Darkness 2d, No. 656; American Berkshire Register; farrowed April 7, 1893; sired by Columbus, No. 28701; dam, Darkness by Ben Hur, No. 19756; bred by W. G. Riley, Thorntown, Ind.; owned and exhibited by W. G. Riley, Thorntown	3 00
5 shoats, under 6 months, W. G. Riley, Thorntown	10 00
Second, E. V. Walborn, Van Wert, O	6 00

SWEEPSTAKES.

Boar, W. G. Riley, Thorntown	$15 00
Sow, Charmer's Beauty No. 29393; American Berkshire Association; farrowed March 18, 1892; sired by Charmer's Duke 18th, No. 19941; dam, Van Wert Beauty by Black Donald, No. 17008; bred by E. V. Walborn, Van Wert, O.; owned and exhibited by E. V. Walborn, Van Wert, O.	15 00
Boar and 4 sows, over 1 year old, E. V. Walborn, Van Wert, O	20 00
Herd, under 1 year old, W. G. Riley, Thorntown	20 00
Second, E. V. Walborn, Van Wert, O	10 00
5 pigs under 12 months, the get of 1 boar, W. G. Riley, Thorntown	10 00
Second, E. V. Walborn, Van Wert, O.	5 00
Sow and not less than 5 suckling pigs under 3 months old, E. V. Walborn, Van Wert, O.	10 00

CLASS XXXIII—Poland China.

BOARS.

2 years old and over, Black J. I. C., No. 9509; Central Poland China Record; farrowed April 26, 1890; sired by Thomas No. 8629; dam, Miss Trenton by Trenton Rock No. 9315; bred by Lloyd, Mugg & Co., Center, Ind.; owned and exhibited by A. J. Seagrave & Son, Center, Ind	12 00
Second, Wilkins & Son, New Lancaster.	6 00
1 year old and under 2, S. M. Shepard, Indianapolis.	10 00
Second, Talbert & Lindley, Russiaville.	5 00
Under 12 and over 6 months, S. M. Shepard, Indianapolis	8 00
Second, Robinson Bros. & Hill, Winchester	4 00
Under 6 and over 3 months, W. O. Reveal, Indianapolis	5 00
Second, A. W. Ross, Muncie.	3 00

SOWS.

2 years old and over, Talbert & Lindley, Russiaville.	12 00
Second, Progressive No. 76228; Ohio Poland-China Record; farrowed March 12, 1891; sired by Demand No. 24507; dam Good Luck, by Black Knight No. 13411; Bred by Robinson Bros. & Hill, Winchester; owned and exhibited by Robinson Bros. & Hill, Winchester	6 00
1 year old and under 2, Talbert & Lindley, Russiaville	10 00
Second, Miss Rosa No. 75542; Ohio Poland-China Record; farrowed March 27, 1892; sired by Demand No. 24507; dam Midnight, by Mint's Tecumseh No. 25445; bred by Robinson Bros. & Hill, Winchester, Ind.; owned and exhibited by Robinson Bros. & Hill, Winchester, Ind	5 00
Under 12 and over 6 months, John Ghere, Frankfort	8 00

Second, W. M. Souder & Son, Kokomo	$4 00
Under 6 and over 3 months, E. V. Walborn, Van Wert, Ohio	5 00
Second, S. M. Shepard, Indianapolis	3 00
5 shoats under 6 months, W. O. Reveal, Indianapolis	10 00
Second, A. W. Ross, Muncie	5 00

SWEEPSTAKES.

Boar, S. M. Shepard, Indianapolis	15 00
Sow, John Ghere, Frankfort.	15 00
Boar and 4 sows over 1 year old, Talbert & Lindley, Russiaville	20 00
Second, John Ghere, Frankfort	10 00
Herd under 1 year, John Ghere, Frankfort	20 00
Second, W. M. Souder & Son, Kokomo.	10 00
5 pigs under 12 months, the get of 1 boar, W. O. Reveal, Indianapolis	10 00
Second, W. H. Hughes, Brownsburg	5 00
Sow and not less than 5 suckling pigs under 3 months old, W. J. Chapman, Indianapolis	10 00

CLASS XXXIV—Chester White and Victories.

BOARS.

2 years old and over, L. N. Martin, Alexandria, O.	12 00
Second, Gen. Weaver No. 6017, Standard Chester White Record; farrowed April 1, 1891; sired by Ben No. 5303; dam Queen of the Woods, by Eclypse No. 5277; bred by R. S. Russell, Zionsville, Ind.; owned and exhibited by R. S. Russell, Zionsville	6 00
1 year old and under 2, M. H. Walrooth, Hillsdale, Mich	10 00
Under 12 and over 6 months, F. A. Branch, Medina, O.	8 00
Second, R. S. Russell & Son, Zionsville.	4 00
Under 6 and over 3 months, L. N. Martin, Alexandria, O	5 00
Second, F. A. Branch, Medina, O	3 00

SOWS.

2 years old and over, F. A. Branch, Medina, O	12 00
Second, L. N. Martin, Alexandria, O.	6 00
1 year old and under 2, F. A. Branch, Medina, O	10 00
Second, L N. Martin, Alexandria, O	5 00
Under 12 months and over 6 months, L. N. Martin, Alexandria, O	8 00
Second, Annie No. 7190, Standard Chester White Record; farrowed Nov. 1, 1892; sired by Gen. Weaver No. 6017; dam Mrs. Pepper, by Russel's Best No. 5267; bred by R. S. Russell, Zionsville; owned and exhibited by R. S. Russell, Zionsville, Ind	4 00
Under 6 months and over 3, L. N. Martin, Alexandria, O.	5 00
Second, L. N. Martin, Alexandria, O.	3 00
5 shoats under 6 months, L. N. Martin, Alexandria, O	10 00
Second, R. S. Russell & Son, Zionsville	5 00

SWEEPSTAKES.

Boar, L. N. Martin, Alexandria, O.	$15 00
Sow, F. A. Branch, Medina, O.	15 00
Boar and 4 sows, 1 year old, L. N. Martin, Alexandria, O.	20 00
Herd under 1 year old, L. N. Martin, Alexandria, O	20 00
Second, R. S. Russell & Son, Zionsville, Ind.	10 00
5 pigs under 12 months, the get of 1 boar, L. N. Martin, Alexandria, O.	10 00
Second, R. S. Russell & Son, Zionsville	5 00
Sow and not less than 5 suckling pigs, under 3 months old, E. H. Dunton, Reading, Mich.	10 00

CLASS XXXV—Essex.

BOARS.

2 years old and over, M. H. Walrooth, Hillsdale, Mich.	12 00
Second, A. C. Green, Winchester	6 00
1 year old and under 2, A. C. Green, Winchester	10 00
Second, M. H. Walrooth, Hillsdale, Mich.	5 00
Under 12 and over 6 months, Wilson J. Neely, Brooklyn, Mich.	8 00
Second, A. C. Green, Winchester	4 00
Under 6 and over 3 months, M. H. Walrooth, Hillsdale, Mich	5 00
Second, M. H. Walrooth, Hillsdale, Mich	3 00

SOWS.

2 years old and over, A. C. Green, Winchester	12 00
Second, Wilson J. Neely, Brooklyn, Ind	6 00
1 year old and under 2, M. H. Walrooth, Hillsdale, Mich	10 00
Second, M. H. Walrooth, Hillsdale, Mich.	5 00
Under 12 and over 6 months, M. H. Walrooth, Hillsdale, Mich.	8 00
Second, A. C. Green, Winchester	4 00
Under 6 months and over 3, Wilson J. Neely, Brooklyn, Mich.	5 00
Second, Wilson J. Neely, Brooklyn, Mich	2 00
5 shoats, under 6 months, A. C. Green, Winchester.	10 00
Second, M. H. Walrooth, Hillsdale, Mich.	5 00

SWEEPSTAKES.

Boar, A. C. Green, Winchester	10 00
Sow, A. C. Green, Winchester	10 00
Boar and four sows, over 1 year old, A. C. Green, Winchester	20 00
Second, Wilson J. Neely, Brooklyn, Mich	10 00
Herd, under 1 year old, Wilson J. Neely, Brooklyn, Mich	20 00
5 pigs, under 12 months, the get of one boar, A. C. Green, Winchester	10 00
Second, M. H. Walrooth, Hillsdale, Mich	5 00
Sow and not less than 5 suckling pigs under 3 months old, A. C. Green, Winchester	10 00

CLASS XXXVI—Yorkshires.

BOARS.

2 years and over, Dandy Jim No. 934; American Small Yorkshire Club; farrowed April 27, 1891; sired by Dandy Duke No. 930; dam West Grove Bell, by Julien No. 567; bred by L. M. Bearce, Waukon, Iowa; owned and exhibited by David Mahan, Lookout, O	$12 00
Second, Mich. Boy No. 832; Small Yorkshire Register; farrowed February 20, 1889; sired by World Beater No. 462; dam Dauntless, by Juno No. 274; bred by D. T. Bascom, California, Mich; owned and exhibited by D. T. Bascom, California, Mich	6 00
1 year old and under 2, Romance No. 1063; Small Yorkshire Register; farrowed April 20, 1892; sired by Mich. Boy No. 832; dam Wanda, by Sir Peter 7th, No. 181; bred by D. T. Bascom, California, Mich.; owned and exhibited by D. T. Bascom, California, Mich	10 00
Second, Willis Whinery, Winona, Ohio	5 00
Under 12 months and over 6 months, Ko Ko No. 1071; Small Yorkshire Register; farrowed December 10, 1892; sired by Nero No. 1035; dam Purity, by Julian 3d, No. 721; bred by D. T. Bascom, Calfornia, Mich.; owned and exhibited by D. T. Bascom, California, Mich	8 00
Second, Fascination No 1072; Small Yorkshire Register; farrowed Decemher 10, 1892; sired by Nero No. 1035; dam Purity, by Julian 3d, No. 721; bred by D. T. Bascom, California, Mich.; owned and exhibited by D. T. Bascom, California, Mich	4 00
Under 6 and over 3 months, Jim Braneh No. 1108; Small Yorkshire Register; farrowed May 24, 1893; sired by Mich. Boy No. 832; dam Mich. Girl, by World Beater No. 462; bred by D. T. Bascom, California, Mich.; owned and exhibited by D. T. Bascom, California, Mich	5 00
Second, Frank No. 1109; Small Yorkshire Register; farrowed May 24, 1893; sired by Michigan Boy No. 832; dam Michigan Girl, by World Beater No. 462; bred by D. T. Bascom, California, Mich.; owned and exhibited by D. T. Bascom, California, Mich	3 00

SOWS.

2 years and over, Purity No. 1759; Small Yorkshire Register; farrowed February 19, 1891; sired by Julian 3d, No. 721; dam Hilda 2d, by Earl No. 223; bred by D. T. Bascom, California, Mich.; owned and exhibited by D. T. Bascom, Califorina, Mich	12 00
Second, Lady Violet No. 1807; Small Yorkshire Register; farrowed February 2, 1890; sired by World Beater No. 462; dam Dauntless, by Juno No. 279; bred by D. T. Bascom, California, Mich.; owned and exhibited by D. T. Bascom, California, Mich	6 00

1 year and under 2, Mirth No. 1836; Small Yorkshire Register; farrowed April 20, 1892; sired by Mich. Boy No. 832; dam Wanda by Sir Peter 7th No. 181; bred by D. T. Bascom, California, Mich.; owned and exhibited by D. T. Bascom, California, Mich	$10 00
Second, Rose L. No. 1837; Small Yorkshire Register; farrowed April 20, 1892; sired by Mich. Boy No. 832; dam Wanda by Sir Peter No. 181; bred by D. T. Bascom, California, Mich.; owned and exhibited by D. T. Bascom, California, Mich	5 00
Under 12 and over 6 months, Lilly Ha Ha No. 1851; Small Yorkshire Register; farrowed December 10, 1892; sired by Nero No. 1035; dam Purity by Julian 3d, No. 721; bred by D. T. Bascom, California, Mich.; owned and exhibited by D. T. Bascom, California, Mich	8 00
Second, Amazement No. 1852; Small Yorkshire Register; farrowed December 10, 1892; sired by Nero No. 1035; dam Purity by Julian 3d, No. 721; bred by D. T. Bascom, California, Mich.; owned and exhibited by D. T. Bascom, California, Mich	4 00
Under 6 and over 3 months, M. H. Walrooth, Hillsdale, Mich	5 00
Second, Floss B. No. 1903; Small Yorkshire Register; farrowed May 24, 1893; sired by Mich. Boy No. 832; dam Mich. Girl by World Beater No. 462; bred by D. T. Bascom, California, Mich.; owned and exhibited by D. T. Bascom, California, Mich	3 00
5 shoats, under 6 months, D. T. Bascom, California, Mich	10 00
Second, David Mahan, Lookout, O.	5 00

SWEEPSTAKES.

Boar, Michigan Boy No. 832; Small Yorkshire Register; farrowed Feb. 20, 1889; sired by World Beater No. 762; dam Dauntless, by Juno No. 274; bred by D. T. Bascom, California, Mich.; owned and exhibited by D. T. Bascom, California, Mich.	10 00
Sow, Lady Violet No. 1807; Small Yorkshire Register; farrowed Feb. 20, 1890; sired by World Beater No. 462; dam Dauntless, by Juno No. 274; bred by D. T. Bascom, California, Mich.; owned and exhibited by D. T. Bascom, California, Mich.	10 00
Boar and 4 sows, over 1 year, D. T. Bascom, California, Mich.	20 00
Second, Willis Whinery, Winona, O.	10 00
Herd, under 1 year old, D. T. Bascom, California, Mich.	20 00
Second, Willis Whinery, Winona, O.	10 00
5 pigs, under 12 months, the get of 1 boar, D. T. Bascom, California, Mich.	10 00
Second, D. T. Bascom, California, Mich.	5 00

CLASS XXXVII—Duroc Jerseys.

BOARS.

2 years old and over, Nelson No. 2839; American Duroc Jersey Swine Association; farrowed March 23, 1890; sired by Searles Ruby No. 2313; dam Alma Miller, by Greenwood Prize No. 1657; bred by S. E. Morton, Camden, O.; owned and exhibited by E M. Borradale, Camden, O.	$12 00
Second, Troubadore No. 2255; American Duroc Jersey Swine Association Register; farrowed March 30, 1889; sired by Doak Ised No. 1352; dam Thetus No. 3782, by Climax 2d, No. 551; bred by S. D. Brosius, Grinnell, Iowa; owned and exhibited by E. M. Borradale, Camden, Ohio	6 00
1 year and under 2, A. Ingram, Perry Ill.	10 00
Second, Golden Seal No. 3605; American Duroc Jersey Association Register; farrowed April 12, 1892; sired by Woodford Duke No. 3601; dam, Mollie C., by Branson King No. 2753; bred by Joseph Vogle, Bensin, Ill.; owned by E. M. Borradale, Camden, O	5 00
Under 12 and over 6 months, E. M. Borradale, Camden, O	8 00
Second, H. Ingram, Perry, Ill	4 00
Under 6 and over 3 months, A. Ingram, Perry, Ill.	5 00
Second, E. M. Borradale, Camden, O	3 00

SOWS.

2 years old and over 1, Variety No. 5980; American Association Register; farrowed March 8, 1889; sired by Magnate No. 2019; dam Daisy Piatt No. 4684, by Prince Apollo No. 1359; bred by S. E. Morton, Camden, O.; owned and exhibited by E. M. Borradale, Camden, O .	12 00
Second, Etta No. 7918, American Association Register; farrowed February 25, 1891; sired by Troubadore No. 2255; dam Ohio Girl 2d, No. 5984, by King Stoner No. 1651 bred and exhibited by E. M. Borradale, Camden, O	6 00
1 year old and under 2, May Queen No. 8882, American Association Register; farrowed April 5, 1892; sired by Troubadore No. 2255; dam May Searle No. 5996, by Sweepstake Duke Junior No. 1713; bred by S. E. Morton, Camden, O.; owned and exhibited by E. M. Borradale, Camden, O	10 00
Second, A. Ingram, Perry, Ill	5 00
Under 12 and over 6 months, Variety 3d, No. 8870, American Duroc Jersey Association Register; farrowed October 20, 1892; sired by Troubadore No. 2255; dam Variety No. 5980, by Magnate No. 2019; bred and exhibited by E. M. Borradale, Camden, O	8 00

Second, Variety 4th, No. 8872, Amer. Duroc Jersey Ass'n Reg.; farrowed October 20, 1892; sired by Troubadore No. 2255; dam Variety No. 5980, by Magnate No. 2019; bred and exhibited by E. M. Borradale, Camden, O	$4 00
Under 6 and over 3, A. Ingram, Perry, Ill	5 00
Second, A. Ingram, Perry, Ill	3 00
5 shoats under 6 months, A. Ingram, Perry, Ill	10 00
Second, E. M. Borradale, Camden, O	5 00

Sweepstakes.

Boar any age, Nelson No. 2839, American Duroc Jersey Ass'n Reg.; farrowed March 23, 1890; sired by Searles Ruby No. 2313; dam Anna Miller No. 6000, by Greenwood Prize No. 1657; bred by S. E. Morton, Camden, O.; owned and exhibited by E. M. Borradale, Camden, O	10 00
Sow any age, Variety No. 5980, American Duroc Jersey Ass'n Reg.; farrowed March 8, 1889; sired by Magnate No 2019; dam Daisy Piatt No. 4584, by Prince Appollo No 1359; bred by S. E. Morton, Camden, O.; owned and exhibited by E. M Borradale	10 00
Boar and 4 sows over 1 year old, E. M. Borradale, Camden, O	20 00
Second, A. Ingram, Perry, Ill	10 00
Herd under 1 year old, E. M. Borradale, Camden, O.	20 00
Second, A. Ingram, Perry, Ill	10 00
5 pigs under 12 months, the get of 1 boar, E. M. Borradale, Camden, O	10 00
Second, A. Ingram, Perry, Ill	5 00
Sow and not less than 5 suckling pigs under 3 months, E. M. Borradale Camden, O	10 00

CLASS XXXVIII—Suffolks.

BOARS.

2 years old and over, A. C. Green, Winchester.	12 00
Second, M. H. Walrooth, Hillsdale, Mich.	6 00
1 year old and under 2, A. C. Green, Winchester	10 00
Second, A. C. Green, Winchester	5 00
Under 12 and over 6, M. H. Walrooth, Hillsdale, Mich.	8 00
Second, A. C. Green, Winchester	4 00
Under six and over 3 months, M. H. Walrooth, Hillsdale, Mich	5 00
Second, A. C. Green, Winchester	3 00

SOWS.

2 years old and over, A. C. Green, Winchester	12 00
Second, A. C. Green, Winchester.	6 00
1 year old and under 2, A. C. Green, Winchester	10 00
Second, A. C. Green, Winchester	5 00

Under 12 and over 6 months, A. C. Green, Winchester	$8 00
Second, A. C. Green, Winchester	4 00
Under 6 months and over 3, A. C. Green, Winchester	5 00
Second, M. H. Walrooth, Hillsdale, Mich	3 00
5 shoats under 6 months, A. C. Green, Winchester	10 00

SWEEPSTAKES.

Boar, any age, A. C. Green, Winchester	10 00
Sow, any age, A. C. Green, Winchester	10 00
Boar and 4 sows over 1 year old, A. C. Green, Winchester	20 00
Herd under one year old, A. C. Green, Winchester	20 00
5 pigs under 12 months, the get of 1 boar, M. H. Walrooth, Hillsdale, Mich	10 00
Second, A. C. Green, Winchester	5 00

POULTRY.

James S. McCoy, Superintendent.

CLASS XL.

Pair Light Brahma fowls, H. Allen, Bloomingdale	$4 00
Second, N. E. Woods, Pecksburg	2 00
Pair Light Brahma chicks, J. H. Tyner, Tipton	4 00
Second, Robt. Thompson, Haughville	2 00
Pair Dark Brahma fowls, H. Allen, Bloomingdale	4 00
Second, Chas. Gammerdinger, Columbus, O	2 00
Pair Dark Brahma chicks, B. F. Duncan, Greenfield	4 00
Second, B. F. Duncan, Greenfield	2 00
Pair Buff Cochin fowls, Mrs. H. L. Harlan, Crawfordsville	4 00
Second, Clair F. Johnson, Rushville	2 00
Pair Buff Cochin chicks, Clair F. Johnson, Rushville	4 00
Second, Chas. Gammerdinger, Columbus, O	2 00
Pair Partridge Cochin fowls, Chas. Gammerdinger	4 00
Second, B F. Duncan, Greenfield	2 00
Pair Partridge Cochin chicks, Chas. Gammerdinger	4 00
Second, B. T. Pace, Salem	2 00
Pair White Cochin fowls, Chas. Gammerdinger, Columbus, O	4 00
Second, B. T. Pace, Salem	2 00
Pair White Cochin chicks, B. T. Pace, Salem	4 00
Second, M. H. Phares, Ray's Crossing	2 00
Pair Black Cochin fowls, B. F. Hiel, Indianapolis	4 00

Second, H. Allen, Bloomingdale	$2 00
Pair Black Cochin chicks, B. F. Hiel, Indianapolis	4 00
Second, J. W. Blackman, Paris, Ill	2 00
Pair Barred Plymouth Rock fowls, McKenzie & Miller, Champaign, Ill.	4 00
Second, Ed. N. Marsh, Frankfort, Ind	2 00
Pair Barred Plymouth Rock chicks, Ed. N. Marsh, Frankfort	4 00
Second, Chas, Gammerdinger, Columbus, O	2 00
Pair White Plymouth Rock fowls, McKenzie & Miller, Champaign, Ill	4 00
Second, Chas. Gammerdinger, Columbus, O	2 00
Pair Silver Wyandotte fowls, Chas. Gammerdinger, Columbus, O	4 00
Second, J. H. Tyner, Tipton, Ind	2 00
Pair Silver Wyandotte chicks, S. E. Wurst, Elyria, O	4 00
Second, M. H. Phares, Ray's Crossing	2 00
Pair Golden Wyandotte fowls, Chas. Gammerdinger, Columbus, O	4 00
Second, Chas. Gammerdinger, Columbus, O	2 00
Pair Golden Wyandotte chicks, J. A. Hornung, Sunman	4 00
Second, McKenzie & Miller, Champaign, Ill.	2 00
Pair White Wyandotte fowls, J. A. Hornung, Sunman	4 00
Second, Ed. N. Marsh, Frankfort, Ind	2 00
Pair White Wyandotte chicks, Ed. N. Marsh, Frankfort, Ind.	4 00
Second, J. A. Hurnung, Sunman.	2 00
Pair B. B. Red Game fowls, Chas Gammerdinger, Columbus, O.	4 00
Second, Jas. A. Guilliams, Fincastle	2 00
Pair B. B. Red Game chicks, Jas. A. Guilliams, Fincastle	4 00
Second, Jas. A. Guilliams, Fincastle	2 00
Pair Langshan fowls, John Champ Marcy	4 00
Second, Ed. N. Marsh, Frankfort	2 00
Pair Langshan chicks, Ed. N. Marsh, Frankfort	4 00
Second, Ed. N. Marsh, Frankfort	2 00
Pair White Leghorn fowls, J J. Burnside, Milligan	4 00
Second, J. J. Burnside, Milligan	2 00
Pair White Leghorn chicks, J. J. Burnside, Milligan	4 00
Second, J. J. Burnside, Milligan.	2 00
Pair Brown Leghorn fowls, E. B. Murphy, Carmel	4 00
Second, M. H. Phares, Ray's Crossing	2 00
Pair Brown Leghorn chicks, M. H. Phares, Ray's Crossing	4 00
Second, Chas. Gammerdinger, Columbus, O	2 00
Pair Black Leghorn fowls, Charles Gammerdinger, Columbus, Ohio	3 00
Second, S. E. Wurst, Elyria, Ohio	2 00
Pair Black Leghorn chicks, M. H. Phares, Ray's Crossing	3 00
Second, S. E. Wurst, Elyria, Ohio	2 00
Pair W. F. Black Spanish fowls, T. M. Campbell, Darlington	3 00
Second, Charles Gammerdinger, Columbus, Ohio	2 00
Pair W. F. Black Spanish chicks, Charles Gammerdinger, Columbus, Ohio	3 00
Second, Charles Gammerdinger, Columbus, Ohio	2 00

Pair Golden Hamburg fowls, Charles Gammerdinger, Columbus, Ohio	$3 00
Second,	
Pair Golden Hamburg chicks, T. M. Campbell, Darlington	3 00
Second, T. H. Buck, Morristown	2 00
Pair Silver Hamburg fowls, Charles Gammerdinger, Columbus, Ohio	3 00
Second, S. E. Wurst, Elyria, Ohio	2 00
Pair Silver Hamburg chicks, Charles Gammerdinger, Columbus, Ohio	3 00
Second, T. H. Buck, Morristown	2 00
Pair Black Hamburg fowls, S. E. Wurst, Elyria, Ohio	3 00
Second, Charles Gammerdinger, Columbus, Ohio	2 00
Pair Black Hamburg chicks, S. E. Wurst, Elyria, Ohio	3 00
Pair W. C. B. Polish fowls, T. H. Buck, Morristown	3 00
Second, T. H. Buck, Morristown	2 00
Pair W. C. B. Polish chicks, T. M. Campbell, Darlington	3 00
Second, Charles Gammerdinger, Columbus, Ohio	2 00
Pair Golden Polish fowls, Charles Gammerdinger, Columbus, Ohio	3 00
Second, Charles Gammerdinger, Columbus, Ohio	2 00
Pair Silver Polish fowls, Charles Gammerdinger, Columbus, Ohio	3 00
Second, T. H. Buck, Morristown	2 00
Pair Black Minorca fowls, Charles Gammerdinger, Columbus, Ohio	4 00
Second, S. E. Wurst, Elyria, Ohio	2 00
Pair Black Minorca chicks, T. H. Buck, Morristown	4 00
Second, Robert Thompson, Haughville	2 00
Pair Black Java fowls, E. B. Murphy, Carmel	3 00
Second, Charles Gammerdinger, Columbus, Ohio	2 00
Pair Colored Dorking fowls, Charles Gammerdinger, Columbus, Ohio	3 00
Pair Silver Gray Dorking fowls, S. E. Wurst, Elyria, Ohio	3 00
Second, Charles Gammerdinger, Columbus, Ohio	2 00
Pair Houdan fowls, Charles Gammerdinger, Columbus, Ohio	3 00
Second, R. E. Leonard, Gem	2 00
Pair Houdan Chicks, S. E. Wurst, Elyria, Ohio	3 00
Second, Charles Gammerdinger, Columbus, Ohio	2 00
Pair Red Cap fowls, T. H. Buck, Morristown	3 00
Second, S. E. Wurst, Elyria, Ohio	2 00
Pair Red Cap chicks, B. T. Pace, Salem	3 00
Second, B. T. Pace, Salem	2 00
Pair Andalusians, Charles Gammerdinger, Columbus, Ohio	3 00
Second, Charles Gammerdinger, Columbus, Ohio	2 00
Pair Crevecoeur fowls, Charles Gammerdinger, Columbus, Ohio	3 00
Pair Crevecoeur chicks, S. E. Wurst, Elyria, Ohio	3 00
Pair Golden Seabright Bantam fowls, H. Allen, Bloomingdale	3 00
Second, S. E. Wurst, Elyria, Ohio	2 00
Pair Golden Seabright Bantam chicks, Chas. Gammerdinger, Columbus, O.	2 00
Second, H. Newell, Ft. Wayne	1 00
Pair Silver Seabright Bantam fowls, T. M. Campbell, Darlington	2 00

Second, S. E. Wurst, Elyria, Ohio	$1 00
Pair Silver Seabright Bantam chicks, H. Newell, Ft. Wayne	2 00
Second,	
Pair Japanese Seabright Bantam fowls, J. H. Tyner, Tipton	2 00
Second, S. E. Wurst, Elyria, Ohio	1 00
Pair Pekin Seabright Bantam fowls, Clair F. Johnson, Rushville	2 00
Second, Clair F. Johnson, Rushville	1 00
Pair Rose Comb Black Seabright Bantam fowls, T. M. Campbell, Darlington	2 00
Second, S. E. Wurst, Elyria, Ohio	1 00
Pair B. B. Red Game fowls, Ed. N. Marsh, Frankfort, Ind	2 00
Second, Ed. N. Marsh, Frankfort, Ind	1 00
Pair B. B. Red Game chicks, Ed. N. Marsh, Frankfort	2 00
Second, J. H. Tyner, Tipton	1 00
Pair Silver Dorking fowls, T. H. Buck, Morristown	2 00
Second, B. F. Duncan, Greenfield	1 00
Pair Silver Dorking chicks, B. F. Duncan, Morristown	2 00
Second, J. H. Tyner, Tipton	1 00
Pair Bronze Turkeys, old, Ed. N. Marsh, Frankfort	4 00
Second, Garrison & Summers, Brazil	2 00
Pair Bronze Turkeys, young, Ed N. Marsh, Frankfort	4 00
Second, J. J. Burnside, Milligan	2 00
Pair White Turkeys, old, Edwin Boyer, Thorntown	4 00
Second, J. H. Tyner, Tipton	2 00
Pair White Turkeys, young, McKenzie & Miller, Champaign, Ill	4 00
Second, McKenzie & Miller, Champaign, Ill	2 00
Pair Toulouse Geese, old, J. A. Hornung, Sunman	3 00
Second, Chas. Gammerdinger, Columbus, O	2 00
Pair Toulouse Geese, young, McKenzie & Miller	3 00
Second, Ed. N. Marsh, Frankfort	2 00
Pair Embden Geese, old, J. H. Tyner, Tipton	3 00
Second, Ed. N. Marsh, Frankfort	2 00
Pair Embden Geese, young, Ed. N. Marsh, Frankfort	3 00
Second, S. E. Wurst, Elyria, O.	2 00
Pair Chinese Geese, S. E. Wurst, Elyria	3 00
Second, Chas. Gammerdinger, Columbus, O.	2 00
Pair Pekin Ducks, McKenzie & Miller, Champaign, Ill.	3 00
Second, Chas. Gammerdinger, Columbus, O	2 00
Pair Aylesbury Ducks, T. M. Campbell, Darlington	3 00
Second, Chas. Gammerdinger, Columbus, O.	2 00
Pair Rouen Ducks, Gammerdinger, Columbus, O	3 00
Second, J. A. Hornung, Sunman	2 00
Pair Muscovy Ducks, Chas. Gammerdinger, Columbus, O.	2 00
Second, T. M. Campbell, Darlington	1 00
Pen Light Brahmas, N. E. Woods, Pecksburg	5 00
Second, H. Allen, Bloomingdale	3 00

Pen Dark Brahmas, Chas. Gammerdinger, Columbus, O	$5 00
Second, B. F. Duncan, Greenfield	3 00
Pen Buff Cochins, Clair F. Johnson, Rushville	5 00
Second, McKenzie & Miller, Champaign, Ill.	3 00
Pen Partridge Cochins, Chas. Gammerdinger, Columbus, O.	5 00
Second, B. T. Pace, Salem	3 00
Pen White Cochins, B. T. Pace, Salem	5 00
Second, S. D. Ghere, Thorntown	3 00
Pen Black Cochins, B. F. Hiel, Indianapolis	5 00
Second, H. Allen, Bloomingdale	3 00
Pen Plymouth Rocks, barred, J. B. Cunningham, Macy	5 00
Second, Ed. N. Marsh, Frankfort	3 00
Pen Plymouth Rocks, white, McKenzie & Miller, Champaign, Ill.	5 00
Second, Chas. Gammerdinger, Columbus, O	3 00
Pen Wyandottes, silver-laced, M. H. Phares, Ray's Crossing	5 00
Second, S. E. Wurst, Elyria, O.	3 00
Pen Wyandottes, gold-laced, Chas. Gammerdinger, Columbus, O.	5 00
Second, Chas. Gammerdinger, Columbus, O	3 00
Pen White Wyandottes, Ed. N. Marsh, Frankfort	5 00
Second, J. A. Hornung, Sunman	3 00
Pen Langshans, John Champ, Macy	5 00
Second, Ed. N. Marsh, Frankfort	3 00
Pen Red Caps, B. T. Pace, Salem	5 00
Second, T. H. Buck, Morristown	3 00
Pen B. B. R. Game, Jas. A. Guilliams, Fincastle	5 00
Second, Chas. Gammerdinger, Columbus, O	3 00
Pen Brown Leghorns, M. H. Phares, Ray's Crossing	5 00
Second, E. B. Murphy, Carmel	3 00
Pen White Leghorns, J. J. Burnside, Milligan	5 00
Second, J. J. Burnside, Milligan	3 00
Pen Black Minorcas, Chas. Gammerdinger, Columbus, Ohio	5 00
Second, T. H. Buck, Morristown	3 00
Pen Houdans, Chas. Gammerdinger, Columbus, Ohio	4 00
Second, Chas. Gammerdinger, Columbus, Ohio	2 00
Pen Black Spanish, Chas. Gammerdinger, Columbus, Ohio	4 00
Second, T. M. Campbell, Darlington	2 00
Pen Silver Hamburgs, Chas. Gammerdinger, Columbus, Ohio.	4 00
Second, M. H. Phares, Ray's Crossing	2 00

DAIRY AND CREAMERY.

CLASS XL.

Creamery butter, Brunswick Creamery Co., Brunswick.	$10 00
Dairy butter, Peter Raub, Brightwood	10 00

BEES AND HONEY.

CLASS XLI.

Best comb honey, Walter S. Pouder, Indianapolis	$13 00
Second, Julius Moesch, N. Indianapolis	6 00
Best extracted honey, Walter S. Pouder, Indianapolis	13 00
Second, G. H. Kirkpatrick, Union City	6 00
Best beeswax, rot less than 20 lbs., G. H. Kirkpatrick, Union City	7 00
Second, Walter S. Pouder, Indianapolis	3 00
Italian bees, G. H. Kirkpatrick, Union City	5 00
Second, Walter S. Pouder, Indianapolis	3 00
Italian queen bee, G. H. Kirkpatrick, Union City	5 00
Second, Walter S. Pouder, Indianapolis	3 00
Aparian Supplies, best collection, Walter S. Pouder, Indianapolis	15 00
Second, G. H. Kirkpatrick, Union City	8 00
Comb foundations, G. H. Kirkpatrick, Union City	2 00
Second, Walter S. Pouder, Indianapolis	1 00
Comb foundations for surplus honey, Walter S. Pouder, Indianapolis	2 00
Second, G. H. Kirkpatrick, Union City	1 00
Honey vinegar, one gallon, Julius Moesch, N. Indianapolis	2 00
Second, G. H. Kirkpatrick, Union City	1 00
Honey Plants, Mrs. Alice Moore, Greensburgh	10 00
Second, Julius Moesch, N. Indianapolis	5 00
Honey extractor, G. H. Kirkpatrick, Union City	3 00
Second, Walter S. Pouder, Indianapolis	2 00
Wax extractor, Walter S. Pouder, Indianapolis	3 00
Bee hive for comb honey, G. H. Kirkpatrick, Union City	3 00
Second, Walter S. Pouder, Indianapolis	2 00
Bee hive, for extracted honey, G. H. Kirkpatrick, Union City	3 00
Second, Walter S. Pouder, Indianapolis	2 00
Shipping crate for comb honey, G. H. Kirkpatrick, Union City	2 00
Second, Walter S. Pouder, Indianapolis	1 00
Uncapping knife, Walter S. Pouder, Indianapolis	1 00
Second, G. H. Kirkpatrick, Union City	50
Smoker, Walter S. Pouder, Indianapolis	1 00
Second, G. H. Kirkpatrick, Union City	50

FARM PRODUCTS.

CLASS XLII—Vegetables.

Three cauliflowers, John Marvel, Royalton	$2 00
Second, Chas. Becker, Mapleton	1 00
Six broccoli, John Marvel, Royalton	2 00
Second, Chas. Becker, Mapleton	1 00

Six eggs, Whipps Bros., Marion, O.	$2 00
Second, Jno. C. Groff, Haughville	1 00
Six cucumbers, Jno. C. Groff, Haughville.	2 00
Second, Mrs. Mary Walters, Indianapolis.	1 00
Peck white beans, J. L. Keckley, Marysville, O.	2 00
Second, D. F. Corwin, Springfield, O.	1 00
Peck white navy beans, J. B. Keckley, Marysville, O	2 00
Second, Sol. H. Hayes, Elizabethtown	1 00
Peck colored navy beans, Jno. C. Groff, Haughville	2 00
Second, Chas. Becker, Mapleton	1 00
Two quarts Lima beans, John Marvel, Royalton	2 00
Second, Whipps Bros. Marion, O	1 00
Half gallon field peas, dry, Sol. H. Hayes, Elizabethtown	2 00
Second, Chas. Becker, Mapleton, Ind.	1 00
Half gallon garden peas, dry, J. L. Keckley, Marysville	2 00
Second, Whipps Bros., Marion, O	1 00
Half peck peppers for pickling, Jno. C. Groff	2 00
Second, Chas. Becker, Mapleton	1 00
Peck tomatoes, Whitesides & Robison, Franklin	2 00
Second, Whipps Bros., Marion, O	1 00
Collection tomatoes, John Marvel, Royalton	3 00
Second, Whipps Bros. Marion, O	2 00
Half dozen ears green sweet corn, Chas. Montgomery	2 00
Second, W. A. Ennis, Clermont	1 00
Half dozen dry sweet corn, Whipps Bros., Marion, O	2 00
Second, Mrs. Kate Heitger, Bedford	1 00
Three Hubbard squashes, Chas. Becker, Mapleton	2 00
Second, Jno. C. Groff, Haughville	1 00
Three Marblehead squashes, John Marvel, Royalton	2 00
Second, Whipps Bros., Marion, O	1 00
Three crook-neck squashes, Whipps Bros., Marion, O	2 00
Second, Jno. C. Groff, Haughville	1 00
Three California squashes, Whitesides & Robison, Franklin	2 00
Second, John Marvel, Royalton	1 00
Largest pumpkin, Whitesides & Robinson, Franklin.	2 00
Largest squash, John Marvel, Royalton	2 00
Three drumhead cabbages, Chas. Becker, Mapleton	2 00
Second, John C. Groff, Haughville.	1 00
Three flat Dutch cabbages, John C. Groff, Haughville	2 00
Second, Chas. Becker, Mapleton	1 00
Three heads cabbages, any other kind, John C. Groff, Haughville.	2 00
Second, Chas. Becker, Mapleton	1 00
Dozen stalks celery, John C. Groff, Haughville	2 00
Second, Chas. Becker, Mapleton	1 00
Collection, grown by exhibitor, John C. Groff, Haughville	10 00
Second, Chas. Becker, Mapleton	5 00

Three watermelons, W. A. Ennis, Clermont	$3 00
Second, Porter Wiggins, Indianapolis	2 00
Three nutmeg melons, Whitesides & Robison, Franklin	3 00
Second, W. A. Ennis, Clermont	2 00
Largest striped Gypsy melon, Chas. Becker, Mapleton	2 00
Largest icing melon, Chas. Becker, Mapleton	2 00
Collection melons, all kinds, Chas. Becker, Mapleton	5 00

CLASS XLIII—Root Crops.

Peck turnips, Whipps Bros., Marion, O.	2 00
Second, John C. Groff, Haughville	1 00
Dozen parsnips	2 00
Dozen carrots, Whipps Bros., Marion, O	2 00
Second, John Marvel, Royalton	1 00
Dozen roots salsify, John Marvel, Royalton	2 00
Second, Whipps Bros., Marion, O	1 00
Dozen horseradish, Chas. Becker, Mapleton	2 00
Second, John C. Groff, Haughville.	1 00
Half dozen long red beets, E. J. Howland, Howland, Ind.	2 00
Second, John Marvel, Royalton	1 00
Half dozen turnip beets, E J. Howland, Howland.	2 00
Second, Whipps Bros., Marion, O	1 00
Half dozen sugar beets, Whipps Bros., Marion, O	2 00
Second, John Marvel, Royalton	1 00
Half dozen mangle wurtzel beets, John Marvel, Royalton.	2 00
Second, Whipps Bros., Marion, O	1 00
Half peck red onions, J. L. Keckley, Marysville, O	2 00
Second, Whipps Bros., Marion, O	1 00
Half peck yellow onions, Whipps Bros., Marion, O	2 00
Second, R. G. Keckley, Paulding, O	1 00
Half peck white onions, Whipps Bros., Marion, O.	2 00
Second, J. L. Keckley, Marysville, O.	1 00
Dozen turnip radishes, John Marvel, Royalton	1 00
Second, Jno. C. Groff, Haughville	50
Dozen long radishes, Chas. Becker, Mapleton	1 00
Second, John Marvel, Royalton	50
Dozen radishes, any other kind, Chas. Becker, Mapleton	1 00
Second, Whipps Bros., Marion, O	50
Collection root crops grown by one exhibitor, John Marvel, Royalton	5 00
Second, Chas. Becker, Mapleton	3 00
Half gallon white onion sets, Becker Bros., Mapleton	2 00
Second, Jno. C. Groff, Haughville	1 00
Half gallon yellow onion sets, D. F. Corwin, Springfield, O	2 00
Second, Chas. Becker, Mapleton	1 00

CLASS XLIV—Potatoes.

Peck Summit, W. O. Swain, Manilla	$2 00
Second, W. S. Keckley, Paulding, O	1 00
Peck White Star, Whipps Bros., Marion, O	2 00
Second, W. O. Swain, Manilla	1 00
Peck Dunmore Seedling, R. G. Keckley, Paulding, O	2 00
Second, Whipps Bros., Marion, O	1 00
Peck Early Rose, Whipps Bros., Marion, O.	2 00
Second, Whitesides & Robison, Franklin	1 00
Peck Snowflake, W. O. Swain, Manilla, Ind.	2 00
Second, J. L. Keckley, Marysville, O.	1 00
Peck Early Ohio, W. O. Swain, Manilla	2 00
Second, Whitesides & Robison, Franklin	1 00
Peck Pride of the Valley, W. S. Keckley, Paulding, O.	2 00
Second, Whipps Bros., Marion, O	1 00
Peck Early Vermont, W. S. Keckley, Paulding, O	2 00
Second, J. L. Keckley, Marysville, O.	1 00
Peck Beauty of Hebron, R. G. Keckley, Paulding, O.	2 00
Second, W. O. Swain, Manilla	1 00
Peck Clark's No. 1, Whipps Bros, Marion, O	2 00
Second, W. S. Keckley, Paulding, O	1 00
Peck Burbank Seedling, Whipps Bros., Marion, O.	2 00
Second, W. S. Keckley, Paulding, O	1 00
Peck Empire State, W. S. Keckley, Paulding, O.	2 00
Second, Whipps Bros., Marion, O	1 00
Peck Rosy Morn, J. L. Keckley, Marysville, O	2 00
Second, W. S. Keckley, Paulding, O	1 00
Peck White Elephant, Whipps Bros., Marion, O	2 00
Second, W. S. Keckley, Paulding, O	1 00
Peck Early Gem, Whipps Bros., Marion, O	2 00
Second, J. L. Keckley, Marysville, O.	1 00
Peck Early Sunrise, W. S. Keckley, Paulding, O	2 00
Second, J. L. Keckley, Marysville, O.	1 00
Peck Red Star, R. G. Keckley, Paulding, O	2 00
Second, W. S. Keckley, Paulding, O	1 00
Peck Golden Spray, W. S. Keckley, Paulding, O	2 00
Second, J. L. Keckley, Marysville, O.	1 00
Peck Green Mountain, W. S. Keckley, Paulding, O	2 00
Second, W. O. Swain, Manilla	1 00
Peck Bliss Triumps, W. S. Keckley, Paulding, O	2 00
Second, Whipps Bros., Marion, O	1 00
Peck Michigan Rose, Whipps Bros., Marion, O	2 00
Second, W. S. Keckley, Paulding, O	1 00
Peck Pride of America, W. S. Keckley, Paulding, O.	2 00

Second, J. L. Keckley, Marysville, O	$1 00
Peck Early Bell, W. S. Keckley, Paulding, O	2 00
Second, W. O. Swain, Manilla	1 00
Peck Charles Downing, W. O. Swain, Manilla	2 00
Second, W. S. Keckley, Paulding, O	1 00
Collection Irish potatoes, ten varieties grown by one exhibitor, W. S. Keckley, Paulding, O	10 00
Second, Whipps Bros., Marion, O	5 00
Peck yellow sweet, Whipps Bros., Marion, O	2 00
Second, Sol. H. Hayes, Elizabethtown	1 00
Peck red sweet, Whitesides & Robison, Franklin	2 00
Second, Chas. Becker, Mapleton	1 00
Collection sweet potatoes, five or more varieties grown by one exhibitor, Whitesides & Robison, Franklin	5 00
Second, Whipps Bros., Franklin	3 00

CLASS XLV—Grain and Seed.

Twenty ears Early Dent field corn, Whitesides & Robison, Franklin	5 00
Second, Whitesides & Robison, Franklin	2 00
Twenty ears yellow corn, Porter Wiggins, Greenfield	5 00
Second, Amos Winship, Rushville	2 00
Twenty ears white corn, Lee Frout, Franklin	5 00
Second, Whitesides & Robison, Franklin	2 00
Twenty ears corn, any other color, Whitesides & Robison, Franklin	5 00
Second, Amos Winship, Rushville	2 00
Twenty ears hominy corn; J. L. Keckley, Marysville, O	2 00
Second, Whipps Bros., Marion, O	1 00
Peck white popcorn, Whipps Bros., Marion, O	2 00
Second, J. L. Keckley, Marysville, O	1 00
Peck red popcorn, John Marvel Royalton	2 00
Second, J. L. Keckley, Marysville, O	1 00
Peck any other popcorn, John Marvel, Royalton	2 00
Second, John Marvel, Royalton	1 00
Display and best variety of corn, all kinds, not less than six ears, in the ear, of each variety, J. L. Keckley, Marysville, O	10 00
Second, Whitesides & Robison, Franklin	5 00
Half bushel white wheat, Whipps Bros., Marion, O	5 00
Second, Whipps Bros., Marion, O	2 00
Half bushel red wheat, W. S. Keckley, Paulding, O	5 00
Second, J. L. Keckley, Marysville, O	2 00
Half bushel amber wheat, W. S. Keckley, Paulding, O	5 00
Second, Whipps Bros., Marion, O.	2 00
Display and best variety of wheat, all kinds; not less than 1 quart of each variety; J. L. Keekley, Marysville, O	10 00

Second, John Marvel, Royalton	$5 00
Display of grain and straw, John Marvel, Royalton	5 00
Second, J. L. Keckley, Marysville, O	2 00
Half bushel rye, Sol. H. Hays, Elizabethtown	2 00
Second, Whipps Bros., Marion, O	1 00
Half bushel white oats, J. L. Keckley, Marysville, O	2 00
Second, Whipps Bros., Marion, O	1 00
Half bushel black oats, J. L. Keckley, Marysville, O	2 00
Second, I. B. Keckley, Marysville, O.	1 00
Half bushel buckwheat, J. L. Keckley, Marysville, O	2 00
Second, John Marvel, Royalton	1 00
Half bushel barley, I. B. Keckley, Marysville, O	2 00
Second, J. L. Keckley, Marysville, O	1 00
Half bushel flax seed, Whipps Bros., Marion, O	2 00
Second, W. A. Ennis, Clermont	1 00
Half bushel millet seed, John Marvel, Royalton	2 00
Second, W. A. Ennis, Clermont	1 00
Half bushel timothy seed, Whitesides & Robison, Franklin	2 00
Second, John Marvel, Royalton	1 00
Half bushel orchard grass seed, Whipps Bros., Marion, O.	2 00
Second, J. L. Keckley, Marysville, O	1 00
Half bushel Hungarian grass seed, J. L. Keckley, Marysville, O	2 00
Second, I. B. Keckley, Marysville, O	1 00
Half bushel Kentucky blue grass seed, Whipps Bros., Marion, O	2 00
Second, I. B. Keckley, Marysville, O	1 00
Half bushel English blue grass seed, W. A. Ennis, Clermont	2 00
Second, John Marvel, Royalton	1 00
Half bushel red clover seed, Amos Winship, Rushville.	2 00
Second, D. F. Corwin, Springboro, O	1 00
Half bushel English clover seed, D. F. Corwin, Springboro, O.	2 00
Second, Whipps Bros., Marion, O.	1 00
Sample 10 lbs. broom corn, W. A. Ennis, Clermont	2 00
Second, Whipps Bros., Marion, O	1 00
Collection of grain seeds grown by exhibitor, J. L. Keckley, Marysville, O	10 00
Second, John Marvel, Royalton	5 00
Collection of farm products by any county or local society, J. L. Keckley, Marysville, O	20 00
Second, John Marvel, Royalton	10 00
Collection of grasses, Whipps Bros., Marion, O.	Diploma

HORTICULTURAL DEPARTMENT.

CLASS XLVI—Apples.

Twenty varieties, D. F. Corwin, Springboro, O	$12 00
Second, Sol. H. Hayes, Elizabethtown	8 00
Twelve varieties, Sol. H. Hayes, Elizabethtown	8 00
Second, D. F. Corwin, Springboro, O	4 00
Six varieties, L. M. Gregg, Springboro, O.	4 00
Second, Sol. H. Hayes, Elizabethtown	2 00
Plate Maiden Blush, D. F. Corwin, Springboro, O.	1 00
Second, L. M. Gregg, Springboro, O	50
Plate Smith Cider, Sol. H. Hayes, Elizabethtown.	1 00
Second, Laura I. Bahr, Huntington	50
Plate Ben Davis, Sol. H. Hayes, Elizabethtown	1 00
Second, Laura I. Bahr, Huntington	50
Plate Rome Beauty, L. M. Gregg	1 00
Second, D. F. Corwin, Springboro, O	50
Plate Winesap, Sol. H. Hayes, Elizabethtown.	1 00
Second, Laura I. Bahr.	50
Plate Rambo, Sol. H. Hayes, Elizabethtown	1 00
Second, D. F. Corwin, Springboro, O	50
Plate Yellow Bellflower, L M. Gregg, Springboro, O	1 00
Second, D. F. Corwin, Springboro, O	50
Plate Fallowater-Tulpekocken, D. F. Corwin, Springboro, O	1 00
Second, Sol. H. Hayes, Elizabethtown	50
Plate Fall Pippin, D. F. Corwin, Springboro, O	1 00
Second, Laura I. Bahr, Huntington	50
Plate Clayton, D. F. Corwin, Springboro, O.	1 00
Second, Sol. H. Hayes, Elizabethtown	50
Plate White Pippin, D. F. Corwin, Springboro, O	1 00
Second, Sol. H. Hayes, Elizabethtown	50
Plate Baldwin, J. B. Cunningham, Macy	1 00
Second, D. F. Corwin, Springboro, O	50
Plate Northern Spy, L. M. Gregg, Springboro, O	1 00
Second, D. F. Corwin, Springboro, O	50
Plate Grimes Golden, L. M. Gregg, Springboro, O	1 00
Second, D. F. Corwin, Springboro, O.	50
Plate Chenango Strawberry, D. F. Corwin, Springboro, O.	1 00
Plate Ohio Nonpareil, D. F. Corwin, Springboro, O	1 00
Second, L. M. Gregg, Springboro, O	50
Plate Belmont, D. F. Corwin, Springboro, O	1 00
Second, L. M. Gregg, Springboro, O	50
Plate Jonathan, J. L. Frank, New Amsterdam	1 00

Second, D. F. Corwin, Springboro, O.	$0 50
Plate Talmon Sweet, D. F. Corwin, Springboro, O	1 00
Second, L. M. Gregg, Springboro, O	50
Plate Holland Pippin, Sol. H. Hayes, Elizabethtown	1 00
Plate Vandever Pippin	
Second, Sol. H. Hayes, Elizabethtown	50
Plate Twenty Ounce, L. M. Gregg, Springboro, O	1 00
Second, Sol. H. Hayes, Elizabethtown	50
Plate Gloria Mundi, Sol. H. Hayes, Elizabethtown	1 00
Second, Laura I. Bahr, Huntington	50
Plate Stark, D. F. Corwin, Elizabethtown	1 00
Second, L. M. Gregg, Springboro, O	50
Plate Crabs, L. M. Gregg, Springboro, O	1 00
Second, Reuben Bunnel, Broad Ripple	50
Plate new seedlings, not exhibited before	
Second, L. M. Gregg, Springboro, O	50

CLASS XLVII—Pears.

Ten varieties, D. F. Corwin, Elizabethtown	8 00
Five varieties autumn pears, Albertson & Hobbs, Bridgeport	4 00
Plate seedlings, not before exhibited, Albertson & Hobbs, Bridgeport	1 00

Peaches and Quinces.

Show of quinces, not less than 12 specimens, Wm. Mustard, Broad Ripple	3 00
Show of peaches, J. M. Cravens, Madison.	3 00

Grapes Grown in Open Air.

Five varieties, D. F. Corwin, Springboro, O.	5 00
Three varieties, D. F. Corwin, Springboro, O	3 00
Five clusters, any kind, Sol. H. Hays, Elizabethtown	2 00

CLASS XLVIII—Sweepstakes Premium.

Best display of fruits, all kinds, L. M. Gregg, Springboro, O	25 00
Display of fruits by any county or local society	
Second, D. F. Corwin, Springboro, O.	15 00
Peck of apples, any variety, L. M. Gregg, Springboro, O	6 00
Second, J. L. Frank, New Amsterdam	4 00
Peck of pears, any variety, E. J. Howland, Howland.	5 00
Second, J. L. Frank, New Amsterdam	3 00

FLORAL DEPARTMENT.

CLASS XLIX—Plants.

Best 12 palms, Anthony Wiegand, Indianapolis	$10 00
Second, Berterman Bros., Indianapolis	8 00
Best 12 fancy calladiums and alocacies, Anthony Wiegand, Indianapolis	10 00
Second, Chas. Wheatcraft, Indianapolis	7 00
Best 25 ferns and lycopodium, Anthony Wiegand, Indianapolis	10 00
Second, Berterman Bros., Indianapolis	7 00
Best 12 blooming begonias, Anthony Wiegand, Indianapolis	7 00
Second, Berterman Bros., Indianapolis	4 00
Best 12 foliage begonias, Chas. Wheatcraft, Indianapolis	7 00
Second, Anthony Wiegand, Indianapolis	4 00
Best 12 cannas, Anthony Wiegand, Indianapolis	10 00
Second, Berterman Bros., Indianapolis	7 00
Best 25 variegated show plants, Anthony Wiegand, Indianapolis	10 00
Second, Berterman Bros., Indianapolis	7 00
Best 12 asters, Anthony Wiegand, Indianapolis	5 00
Second, Chas. Wheatcraft, Indianapolis	3 00
Best 12 double geraniums, Chas. Wheatcraft, Indianapolis	6 00
Best 12 coleus, Berterman Bros., Indianapolis	6 00
Second, Chas. Wheatcraft, Indianapolis	4 00
Best 2 vases, either iron, rustic or wire, Anthony Wiegand, Indianapolis	10 00
Second, Chas. Wheatcraft, Indianapolis	7 00
Best 3 hanging baskets, Chas. Wheatcraft, Indianapolis	5 00

SPECIAL.

Best display and arrangement of show plants, Anthony Weigand, Indianapolis	50 00
Second, Berterman Bros., Indianapolis	35 00

FIRST FLORAL DAY.

Best 2 funeral designs, Berterman Bros., Indianapolis	25 00
Second, John Rieman & Co., Indianapolis	15 00
Best 3 baskets, John Rieman & Co., Indianapolis	20 00
Second, Berterman Bros., Indianapolis	15 00
Best 5 bouquets, Berterman Bros., Indianapolis	10 00
Collection of cut roses, W. W. Coles, Kokomo, Ind	10 00
Second, Berterman Bros., Indianapolis	7 00
Collection cut flowers, Berterman Bros., Indianapolis	15 00
Second, Chas. Wheatcraft, Indianapolis.	10 00

SECOND FLORAL DAY.

Collection cut gladiolus, Berterman Bros., Indianapolis	$15 00
Best and most original show design, Berterman Bros., Indianapolis	50 00
Second, Jno. Rieman & Co., Indianapolis	35 00
Best and most original funeral design, Jno. Rieman & Co., Indianapolis	50 00
Second, Berterman Bros., Indianapolis	35 00

CLASS L—Amateur.

Best collection of begonias, Mrs. E. A. Parker, Indianapolis	5 00
Second, Augusta Moesch, N. Indianapolis	3 00
Best collection astors in bloom, Augusta Moesch, N. Indianapolis	4 00
Second, Mrs. E. A. Parker, N. Indianapolis	2 00
Best collection cannas, Augusta Moesch, N. Indianapolis	4 00
Second, Mrs. E. A. Parker, Indianapolis	2 00
Best collection climbing and trailing plants, Augusta Moesch, N. Indianapolis	4 00
Second, Mrs. E. A. Parker, Indianapolis	2 00
Best 3 hanging baskets, Augusta Moesch, N. Indianapolis	3 00
Second, Mrs. E. A. Parker, Indianapolis	2 00
Best general collection plants, Mrs. E. A. Parker, Indianapolis	8 00
Second, Augusta Moesch, N. Indianapolis	4 00

CUT FLOWERS.

Best collection geraniums, Mrs. E. A. Parker, Indianapolis	3 00
Second, Augusta Moesch, N. Indianapolis	2 00
Best collection roses, Mrs. E. A. Parker, Indianapolis	4 00
Second, Augusta Moesch, N. Indianapolis	2 00
Best collection verbenas, Augusta Moesch, N. Indianapolis	3 00
Second, Mrs. E. A. Parker, Indianapolis	2 00
Best collection dahlias, Mrs. E. A. Parker, Indianapolis	3 00
Second, Augusta Moesch, N. Indianapolis	2 00
Best collection gladiolus, Mrs. S. T. Stagg, Greensburg	3 00
Second, Augusta Moesch, N. Indianapolis	2 00
Best design of cut flowers, John T. Thatcher, Mapleton	8 00
Second, Augusta Moesch, North Indianapolis	4 00

GEOLOGY.

General collection of fossils, Chas. Babcock, Indianapolis	$6 00
Second, Wm. H. Seaton, Indianapolis	4 00
General collection minerals, Chas. Babcock, Indianapolis	5 00
Second, Wm. H. Seaton, Indianapolis	2 00
General collection shells, Chas. Babcock, Indianapolis	3 00
Second, Wm. H. Seaton, Indianapolis	2 00

Collection Mound Builders' implements, Chas. Babcock, Indianapolis	$5 00
Second, Wm. H. Seaton, Indianapolis	3 00
Collection of stuffed and mounted birds, animals and reptiles, illustrating the natural history of the State, Wm. H. Seaton, Indianapolis.	5 00
Second, Chas. Babcock, Indianapolis	2 00
Collection skinned birds and animals, Chas. Babcock, Indianapolis	3 00
Second, Wm. Seaton, Indianapolis	2 00
Collection botanical specimens, A. J. Sulman, Indianapolis.	3 00
Second, Miss L. L. Ingram, Indianapolis	2 00
Collection of curiosities, to consist of relics of the late war and of historical interest, Wm. H. Seaton, Indianapolis	3 00
Second, Chas. Babcock, Indianapolis	2 00

WOMAN'S DEPARTMENT.

CLASS LIII—Old Ladies' Department.

Worsted quilt, Mrs. C. Dille, Greensburg	$2 00
Calico quilt, Mrs. S. L. Fortner, Indianapolis	1 50
Second, Mrs. P. D. Stagg, Greensburg.	1 00
Quilt, outline, Mrs. C. Dille, Greensburg	1 50
Rug, Mrs. C. Dille, Greensburg	1 50
Spread, crochet, Mrs. C. J. Gardner, Indianapolis	1 50
Second, May Thomburry, Indianapolis.	1 00
Pair silk mittens, hand-knit.	
Second, Mrs. C. Dille, Greensburg	1 00
Pair silk stockings, hand-knit, Mrs. C. C. Burns, Greensburg	1 50
Second, Mrs. P. D. Stagg, Greensburg	1 00
Pair silk socks, hand-knit	
Second, Mrs. C. C. Burns, Greensburg	1 00
Pair woolen stockings, hand-knit, Mrs. C. C. Burns, Greensburg	1 50
Second, L. E. Rockwell, Quincy, Ill	1 00
Pair woolen socks, hand-knit	
Second, Mrs. P. D. Stagg, Greensburg	1 00
Pair worsted mittens, fancy knitting, Mrs. C. C. Burns, Greensburg	1 00
Hem stitching, W. F. Jinkins, Indianapolis	1 50
Second, L. E. Rockwell, Quincy, Ill	1 00
Drawn work, Mrs. P. D. Stagg, Greensburg	1 50
Second, Mrs. C. C. Burns, Greensburg	1 00
Table cover, L. E. Rockwell, Quincy, Ill	1 50
Second, Ida Thompson, Indianapolis	1 00
Table scarf, Mrs. P. D. Stagg, Greensburg	1 50
Second, Mrs. L. A. Moore, Terre Haute	1 00

Embroidery, cotton, Mrs. C. C. Burns, Greensburg	$1 50
Second, Mrs. L. A. Moore, Terre Haute	1 00
Embroidery, silk, specimen, Mrs. C. C. Burns, Greensburg	1 50
Second, Mrs. P. D. Stagg, Greensburg	1 00
Embroidery, worsted, specimen, L. E. Rockwell, Quincy Ill.	1 50
Second, Mrs. L. A. Moore, Terre Haute	1 00
Embroidery, tray cloth	
Second, Sara Levinson, Shelbyville	1 00
Crochet slippers, May Thornburry, Indianapolis	1 50
Second, Sara Levinson, Shelbyville	1 00
Crochet shawl	
Second, L. E Rockwell, Quincy, Ill	1 00
Couch cover, Ida Thomson, Indianapolis	1 50
Second, Mrs. C. C. Burns, Greensburg	1 00
Reticule	
Second, Mrs. P. D. Stagg, Greensburg	50

CLASS LIV—Knitting and Crochet Work.

Infant's shirt, L. E. Rockwell, Quincy, Ill.	1 50
Second, Laura I. Bahr, Huntington	1 00
Infant Socks, display, Mrs. S. S. Fortner, Indianapolis	1 50
Second, Mrs. Georgia A. McLeal, Avondale, O.	1 00
Pair silk mittens, hand knit, Maud Hinsey, Pekin, Ill.	1 50
Second, Mrs. J. H. Spence, Covington	1 00
Pair woolen mittens, hand-knit, Mrs. C. C. Burns, Greensburg	1 50
Second, Mrs. Georgia A. McLeal, Avondale, O.	1 00
Pair silk stockings, hand-knit, Mrs. C. C. Burns, Greensburg	2 00
Second, Maud Hinsey, Pekin, Ill.	1 00
Pair fancy woolen stockings, hand-knit, Eliza J. Crisler, Greensburg	1 50
Second, Maud Hinsey, Pekin, Ill.	1 00
Crochet fascinator, ice-wool, Mrs. R H. Talbutt, Lexington, Ky.	1 50
Second, Mrs. C. C. Burns, Greensburg.	1 00
Infant's crochet saque, Mrs. C. Dille, Greensburg	1 50
Second, Mrs. Allen Sammons	1 00
Infant's knit saque, Mrs. Georgia A. McLeal, Avondale O	1 50
Second, Mrs. Georgia A. McLeal, Avondale, O.	1 00
Crochet shawl, ice-wool, Mrs. Georgia A. McLeal, Avondale O	2 00
Second, Maud Hinsey, Pekin, Ill.	1 00
Couch cover, Maud Hinsey, Pekin, Ill	2 00
Second, Miss Anne Miller, Quincy, Ill	1 00
Afghan, infant's, Maud Hinsey, Pekin, Ill	2 00
Second, Miss Anne Miller, Quincy, Ill	1 00
Afghan, Laura I. Bahr, Huntington, Ind	2 00
Second, Miss Anne Miller.	1 00
Counterpane, knit, Maud Hinsey, Pekin, Ill.	2 00

Crochet skirt, Maud Hinsey, Pekin, Ill	$2 00
Second, Miss Anne Miller, Quincy, Ill	1 00
Child's crochet skirt, Mrs. C. Dille	1 50
Second, Maud Hinsey, Pekin, Ill.	1 00
Crochet slippers, Mrs. Georgia A. McLeal, Avondale, O	1 50
Second, Mrs. Allen, Sammons	1 00
Knit slippers, Mrs. Georgia A. McLeal, Avondale, O.	1 50
Second, Mrs. Allen, Sammons	1 00
Crochet tidy, Miss Anne Miller, Quincy, Ill	1 50
Second, Maud Hinsey, Pekin, Ill	1 00
Silk purse, Mrs. Minnie Demott, Indianapolis	1 50
Second, Mrs. C. Dille, Greensburg	1 00

CLASS LV—Lace Work.

Point lace, display, Maud Hinsey, Pekin, Ill	3 00
Second, Mrs J. H. Spence, Covington.	2 00
Point lace, specimen, Maud Hinsey, Pekin, Ill	2 00
Second, Mrs. R. P. Craft	1 00
Point lace handkerchief, Maud Hinsey, Pekin, Ill.	2 00
Second, L. E. Rockwell, Quincy, Ill	1 00
Tatting, specimen, Mrs. J. H. Spence, Covington	1 50
Second, Sara Levinson, Shelbyville	1 00
Novelty braid, display in articles made up, Mrs. J. H. Spence, Covington	1 50
Second, Mrs. Georgia A. McLeal, Avondale, O	1 00
Silk lace, Maud Hinsey, Pekin, Ill.	1 50
Honiton lace, specimen, Mrs. J. H. Spence, Covington	1 50
Second, Sara Levinson, Shelbyville	1 00

CLASS LVI—Embroidery—Hand Made.

Cotton, white, Maud Hinsey, Pekin, Ill.	1 50
Second, Mrs. C. Lamotte, Indianapolis	1 00
Cotton, colored specimen, Maud Hinsey, Pekin, Ill	1 50
Second, Eliza J. Crisler, Greensburg	1 00
Lunch set, Mrs. Mary Heron, Indianapolis	3 00
Second, D. A. Armstrong	2 00
Doyley set, not less than six, Mrs. Scott, Indianapolis	2 00
Second, Mrs. L. A. Moore, Terre Haute.	1 00
Linen tablecloth and half dozen napkins, Maud Hinsey, Pekin, Ill	3 00
Second, Laura Blackstock, Lafayette.	2 00
Hostess cloth, Mrs. H. S. Murdock, Logansport	2 00
Second, Mrs. Chas. Peck, Indianapolis	1 00
Tray cloth, Sara Levinson, Shelbyville	1 50
Second, Maud Hinsey, Pekin, Ill	1 00
Silk skirt, white, Maud Hinsey, Pekin, Ill	2 00

Second, Maud Hinsey, Pekin, Ill	$1 00
Silk infant's shawl, Maud Hinsey, Pekin, Ill	2 00
Second, L. E. Rockwell, Quincy, Ill	1 00
Table cover, Maud Hinsey, Pekin, Ill	2 00
Second, Miss Anne Miller, Quincy, Ill	1 00
Table scarf, Maud Hinsey, Pekin, Ill	2 00
Second, Mrs. Allen Sammons	1 00
Piano scarf, Mrs. L. A. Moore, Terre Haute.	2 00
Second, Mrs. Allen Sammons	1 00
Dresser furnishings, Maud Hinsey, Pekin, Ill.	1 50
Second, Mrs. L. A. Moore, Terre Haute.	1 00
Couch pillow, Mrs. Scott, Indianapolis	2 00
Second, Miss Anne Miller, Quincy, Ill	1 00
Toilet cushion, new style, D. A. Armstrong	1 50
Second, Mrs. Allen Sammons	1 00
Outline, pair towels, Maud Hinsey, Pekin, Ill.	1 50
Second, Mrs. L. A. Moore, Terre Haute.	1 00
Outline, specimen, Mrs. R. H. Talbott, Lexington, Ky	1 50
Second, Maud Hinsey, Pekin, Ill	1 00
Outline, carving cloth, Maud Hinsey, Pekin, Ill.	1 50
Second, Mrs. L. A. Moore, Terre Haute.	1 00
Kensington specimen, Mrs. L. A. Moore, Terre Haute	2 00
Second, Mrs. Chas. Peck, Indianapolis	1 00
Table, center, emb., Mrs. C. C. Burns, Greensburg	1 50
Second, Maud Hinsey, Pekin, Ill	1 00
Tapestry, Miss Anne Miller, Quincy, Ill	2 00
Second, L. E. Rockwell, Quincy, Ill	1 00
High art needle work specimen, Maud Hinsey, Pekin, Ill	2 00
Second, Miss Sadie Read, Indianapolis	1 00
Tinting and embroidery, D. A. Armstrong	2 00
Second, Maud Hinsey, Pekin, Ill	1 00
Rope, silk, Maud Hinsey, Pekin, Ill	1 50
Second, Mrs. Allen Sammons	1 00
Queen Anne darning, Maud Hinsey, Pekin, Ill	2 00
Second, Mrs. Allen Sammons	1 00
Roman embroidery, L. E. Rockwell, Quincy, Ill	2 00
Second, Mrs. R. H. Talbutt, Lexington, Ky	1 00
Sorrento embroidery, Mrs. C. Dille, Greensburg	2 00
Second, Mrs. C. C. Burns, Greensburg	1 00
Etching in silk, specimen, Maud Hinsey, Pekin, Ill	2 00
Second, L. E. Rockwell, Quincy, Ill	1 00
Towels, pair, Mrs. C. Dille, Greensburg	2 00
Second, Sarah Levinson, Shelbyville	1 00
Chamois, Miss Mary Heron, Indianapolis	2 00
Second, Anna M. Kistner, Indianapolis	1 00

Portieres, pair, Miss Anne Miller, Quincy, Ill	$3 00
Second, L. E. Rockwell, Quincy, Ill	2 00
Denim, specimen, Kate H. Ellsworth, Chicago, Ill	2 00
Basket or moile cloth, Mrs. L. A. Moore, Terre Haute	1 50
Second, Maud Hinsey, Pekin, Ill	1 00
Handkerchief satchet, Miss Anne Miller, Quincy, Ill	1 50
Second, Maud Hinsey, Pekin, Ill	1 00
Glove satchet, Mrs. Allen Sammons	1 50
Second, Mrs. H. S. Murdock, Logansport	1 00
Tea Cosey, Maud Hinsey, Pekin, Ill	1 50
Second, Mrs. Allen Sammons	1 00
Five o'clock tea, Mrs. H. S. Murdock, Logansport	1 50
Second, Miss Mary Heron, Indianapolis	1 00

CLASS LVII—Sewing, Machine and Hand.

MACHINE WORK.

Machine-work apron, F. A. Cummings, Indianapolis	1 50
Second, Sara Levinson, Shelbyville	1 00
Lady's white skirt, Eliza J. Crisler, Greensburg	1 50
Second, F. A. Cummings, Indianapolis	1 00
Hemstitching, machine, F. A. Cummings, Indianapolis	1 50
Second, F. Cummings, Indianapolis	1 00
Hemstitching child's dress, Mrs. Kittie R. Hedges, Indianapolis	1 50
High art machine work, specimen, F. A. Cummings, Indianapolis	2 00
Machine embroidery display, Sara Levinson, Shelbyville	4 00

HAND WORK.

Hemstitching towel, Maud Hinsey, Pekin, Ill	1 50
Second, Mrs. C. C. Burns, Greensburg	1 00
Hemstitching sheets and pillow-cases, Laura I. Bahr, Huntington	2 00
Hemstitching child's dress, Mrs. C. C. Burns, Greensburg	2 00
Second, Laura I. Bahr, Huntington	1 00
Drawn work, Mrs. C. C. Burns, Greensburg	1 00
Second, Mrs. R. H. Talbutt, Lexington, Ky	1 00
Drawn work, Persian, Mrs. L. A. Moore, Terre Haute	2 00
Drawn work, Mexican, Mrs. L. A. Moore, Terre Haute	2 00
Second, Maud Hinsey, Pekin, Ill	1 00
Infant's outfit, most sensible and neat, Mrs. Kittie R. Hedges. Indianapolis	4 00
Second, Maud Hinsey, Pekin, Ill	2 00
Infant dress, Maud Hinsey, Pekin, Ill	2 00
Second, L. E. Rockwell, Quincy, Ill	1 00
Lady's white skirt, Maud Hinsey, Pekin, Ill	2 00
Second, L. E. Rockwell, Quincy, Ill	1 00

CLASS LVIII—Miscellaneous.

Handkerchief sachet, not embroidered, Mrs. Georgia A. McLeal	$1 50
Second, Mrs. C. Dille, Greensburg	1 00
Glove satchet, not embroidered, Laura I. Bahr, Huntington	1 50
Second Mrs. Allen Sammons	1 00
Magazine-holders, Miss Retta Mathews, Arlington	1 50
Second, Charlotte Powell, Irvington	1 00
Toilet cushion, Maud Hinsey, Pekin, Ill	1 50
Second, D. A. Armstrong	1 00
Couch pillow, most sensible, Mrs. Allen Sammons	1 50
Second, Maud Hinsey, Pekin, Ill	1 00
Toilet scarf, Maud Hinsey, Pekin, Ill	1 50
Second, Maud Hinsey, Pekin, Ill	1 00
Dresser or bureau set, not embroidered, Maud Hinsey, Pekin, Ill	1 50
Second, Maud Hinsey, Pekin, Ill	1 00
Infant's nursery basket, Mrs. C. Dille, Greensburg	2 00
Rug, Laura I. Bahr, Huntington	1 50
Second, Mrs R. Senior, Indianapolis	1 00
Book cover, Mrs. M. A. Payne, Palmyra, Mo	1 50
Second, Laura I. Bahr, Huntington	1 00
Lunch set, not embroidered, Mrs. C. Dille, Greensburg	2 00
Second, Maud Hinsey, Pekin, Ill	1 00
Doyleys, not embroidered, not less than six, W. F. Jinkins, Indianapolis	1 50
Second, Maud Hinsey, Pekin, Ill	1 00
Hostess cloth, not embroidered, Mrs. C. C. Burns, Greensburg	1 50
Second, Mrs. L. A. Moore, Terre Haute	1 00
Head rest, Mrs. Chas. E. Barrett	1 50
Second, Sara Levinson, Shelbyville	1 00
Reticule, Maud Hinsey, Pekin, Ill	1 50
Second, Laura I. Bahr, Huntington	1 00
Fancy apron, Mrs. C. Dille, Greensburg	1 50
Second, Mrs H. S. Murdock, Logansport	1 00
Kitchen aprons, most practical, Mrs. J. N. Davidson, Crawfordsville	1 50
Second, Maud Hinsey, Pekin, Ill	1 00
Shaving pad, Mrs. Allen Sammons	1 50
Second, Mrs. Georgia A. McLeal, Avondale, O	1 00
Fancy mirror tilt, Maud Hinsey, Pekin, Ill	1 50
Drape or throw, Mrs. Jos. Lauer, Rochester	1 50
Second, Mrs. C. Dille, Greensburg	1 00
Housewife, Maud Hinsey, Pekin, Ill	1 50
Second, Laura I. Bahr	1 00
Fire screen, mounted, Mrs. Scott, Indianapolis	2 00
Table cover, Mrs. L. A. Moore, Terre Haute	1 50
Second, Maud Hinsey, Pekin, Ill	1 00

Table center, Mrs. R. H. Talbutt, Lexington, Ky	$1 50
Second, Mrs. Georgia McLeal, Avondale, O	1 00
Photograph case, D. A. Armstrong	1 50
Second, Mrs. C. Dille, Greensburg	1 00
Fancy opera bag, Mrs. L. A. Moore, Terre Haute	1 50
Second, Maud Hinsey, Pekin, Ill	1 00
Laundry bag, Mrs. L. A. Moore, Terre Haute	1 50
Second, Laura I. Bahr, Huntington	1 00
Darning bag, Mrs. Allen Sammons	1 50
Second, W. F. Jenkins, Indianapolis	1 00
Dust bag, Mrs. Scott, Indianapolis	1 50
Second, Eliza J. Crisler, Greensburg	1 00
Fancy tidy, Mrs. Chas. E. Barrett, Indianapolis	1 50
Second, Maud Hinsey, Pekin, Ill	1 00
Lamp shade, Maud Hinsey, Pekin, Ill	1 50
Table mats, Mrs. Jos. Lauer, Rochester	1 50
Second, Maud Hinsey, Pekin, Ill	1 00
Cord ball, fancy, Emily Jackson, Mapleton	1 00
Fancy mantel drape, Maud Hinsey, Pekin, Ill	2 00
Second, Eliza J. Crisler, Greensburg	1 00
Quilt, silk needlework, Maud Hinsey, Pekin, Ill	2 00
Second, Laura I. Bahr, Huntington	1 00
Crazy quilt, L. E. Rockwell, Quincy, Ill	2 00
Second, Miss Anne Miller, Quincy, Ill	1 00
Chair strips, Maud Hinsey, Pekin, Ill	1 50
Second, Mrs. H. S. Murdock, Logansport	1 00

CLASS LX—Decorative Art Work.

Hammered or repousse work, W. F. Jenkins, Indianapolis	2 00
Second, Mrs. R P. Craft, Indianapolis	1 00
Modeling in clay, Mrs. J. H. Spence, Covington	2 00
Second, Miss Retta Mathews, Arlington	1 00
Modeling in clay, bust from life, Miss Retta Mathews, Arlington	5 00
Second, Miss Retta Mathews, Arlington	3 00
Bas relief, Miss Retta Mathews, Arlington	4 00
Second, Miss Retta Mathews, Arlington	2 00
Wood carving, display, Mary Dorn, Westfield	5 00
Second, Miss Retta Mathews, Arlington	3 00
Wood carving, specimen, Mrs. L. Youke, Indianapolis	4 00
Second, Martha Dorn, Westfield	3 00
Painting on bolting cloth, Mrs. Samuel Taylor, Indianapolis	2 00
Second, D. A. Armstrong	1 00
Painting on chamois skin, Mrs. J. H. Spence, Covington	2 00
Second, C. E. Spahr, Indianapolis	1 00
Tapestry painting, Mrs. R. E. Ferry, Indianapolis	5 00

Second, Helen Parrey, Indianapolis	$3 00
Blotting pad, Miss Retta Mathews, Arlington	2 00
Second, Miss Retta Mathews, Arlington	1 00
Letter case, C. E. Spahr, Indianapolis	2 00
Photograph frame, Mrs. Georgia McLeal, Avondale, O.	2 00
Painted fire-screen, mounted, Miss Retta Mathews, Arlington.	4 00
Second, Mrs. W. H. Welsh, Indianapolis	2 00
Pottery painting, limoges, specimen, Mrs. W. H. Welsh, Indianapolis	2 00
Pottery painting, biscuit, display, Mrs. W. H. Welsh, Indianapolis	3 00

CLASS LXI—Art Work, Amateur.

Painting on china, ornamental pieces, display, Mrs. R. P. Craft, Ind'polis.	4 00
Second, Miss Mary Heron, Indianapolis	2 00
Painting on china, fruit set (7 pieces) Mrs. W. H. Welsh	3 00
Second, Miss Mary Heron, Indianapolis	2 00
Painting on china, relief gold, Miss Mary Heron, Indianapolis	2 00
Second, Mrs. W. H. Welsh, Indianapolis	1 00
Painting on china, mat colors, Mrs. John F. Julian, Irvington	2 00
Second, Miss Mary Heron, Indianapolis	1 00
Painting on china, colored gold, Mrs. John F. Julian, Irvington	2 00
Second, Mrs. W. H. Welsh, Indianapolis	1 00
Painting on china, Dresden, Mrs. John F. Julian, Irvington	2 00
Second, Miss Mary Heron, Indianapolis	1 00
Painting on china, Royal Worcester, Mrs. W. H. Welsh, Indianapolis	2 00
Second, Miss Mary Heron, Indianapolis	1 00
Painting on toilet set, not less than five pieces, Miss Mary Heron, Indianapolis	3 00
Second, Mrs John F. Julian, Irvington	2 00
China decorated with original flower designs, display, Miss Mary Heron, Indianapolis	4 00
Second, Mrs. R. P. Craft, Indianapolis	2 00
China decorated with historical forms of conventional ornament display, Mrs. W. H. Welsh, Indianapolis	4 00
Jeweled work, Royal Worcester, Miss Mary Heron Indianapolis	2 00
Crayon drawing, Lydia Hadley, Rockville	2 00
Second, Mrs. E. A. Kingsbury, Indianapolis	1 00
Pastel painting, Martha Dorn, Westfield	2 00
Second, Lydia Hadley, Rockville	1 00
Flowers in oil, display, Bill Morgan, Indianapolis	3 00
Second, Mrs R. P. Craft, Indianapolis	2 00
Flowers in oil, specimen, Minnie Akass, Indianapolis	2 00
Second, Mrs. R. P. Craft, Indianapolis	1 00
Fruit, in oil, Bill Morgan, Indianapolis	2 00
Second, Mrs. E. A. Kingsbury, Indianapolis	1 00
Still life, in oil, Helen Parry, Indianapolis	2 00

Second, Mrs. E. A. Kingsbury, Indianapolis	$1 00
Anamel, in oil, Mary S. Brown, Richmond	2 00
Second, Minnie Akass, Indianapolis	1 00
Sketch from nature, in oil, Olive Rush, Fairmount	6 00
Second, Mrs. I. King, Indianapolis	4 00
Portrait, in oil, from life, Olive Rush, Fairmount	8 00
Second, Mrs. R. P. Craft, Indianapolis	5 00
Portrait, in crayon, Nannie Williams, Ladoga	4 00
Ideal head, Lena Ingraham, Indianapolis	2 00
Second, Mrs. Bill Tevis, Tipton	1 00
Original decorative design, Mrs. R E. Ferry, Indianapolis	4 00
Second, Helen Ingraham, Indianapolis	3 00
Spring scene, in oil, Mrs. E. A. Kingsbury, Indianapolis	2 00
Second, Mrs. R. P. Craft, Indianapolis	1 00
Summer scene, in oil, Mrs. R. P. Craft, Indianapolis	2 00
Second, Mrs. E. A. Kingsbury, Indianapolis	1 00
Autumn scene, in oil, Minnie Akass, Indianapolis	2 00
Second, Mrs. E. A. Kingsbury, Indianapolis	1 00
Winter scene, in oil, Mrs. E. A. Kingsbury, Indianapolis	2 00
Second, T. E. Summerville, Indianapolis	1 00
Marine scene, in oil, Bill Morgan, Indianapolis	2 00
Second, Mrs. A. E. Ferry, Indianapolis	1 00
Interior scene, with figures, in oil, Olive Rush, Fairmount	2 00
Second, Mrs. E. A. Kingsbury, Indianapolis	1 00
Flowers, in water colors, display, Lydia Hadley, Rockville	3 00
Second, Bill Morgan, Indianapolis	2 00
Flowers, in water colors, specimen, Lydia Hadley, Rockville	2 00
Second, Bill Morgan, Indianapolis	1 00
Sketch from nature, water colors, Mrs. E. A. Kingsbury, Indianapolis	6 00
Second, Bill Morgan, Indianapolis	4 00
Original conventional design, oil or water colors, Mrs. Georgia A. McLeal, Avondale, O	4 00
Original realistic designs, oil or water colors, Mrs. Georgia A. McLeal, Avondale, O	4 00
Drawings, original display, Helen Ingraham, Indianapolis	5 00
Second, Helen Ingraham, Indianapolis	3 00
Drawing, original specimen, Helen Ingraham, Indianapolis	4 00
Second, Olive Rush, Fairmount	3 00
Drawings, copy display, Lydia Hadley, Rockville	3 00
Second, Helen Ingraham, Indianapolis	2 00
Drawings, copy specimen, Lena Ingraham, Indianapolis	2 00
Second, Minnie Akass, Indianapolis	1 00
Pen and ink sketches, display, Helen Ingraham, Indianapolis	3 00
Second, Mrs. Georgia A. McLeal, Avondale, O.	2 00
Pen and ink sketch, specimen, Mrs. Georgia A. McLeal, Avondale, O	2 00

Second, Helen Ingraham, Indianapolis	$1 00
Charcoal drawings from antique, display, Mrs. Georgia A. McLeal, Avondale, O.	3 00
Second, Helen Ingraham, Indianapolis	2 00
Charcoal sketch from nature, Olive Rush, Fairmount	4 00
Second, Helen Ingraham, Indianapolis	2 00

CLASS LXII—Art Work, Professional.

Portrait in oil, Miss Retta Mathews, Arlington	10 00
Second, Mrs. R. E. Ferry, Indianapolis	6 00
Portrait in water colors, C. E. Spahr, Indianapolis	4 00
Second, C. E. Spahr, Indianapolis	2 00
Portrait in pastel, C. E. Spahr, Indianapolis	8 00
Second, C. E. Spahr, Indianapolis	5 00
Portrait in crayon, Miss Belle Tevis, Tipton	5 00
Second, Miss Retta Mathews, Arlington	3 00
Landscape in oil, display, Mrs. R. E. Ferry, Indianapolis	5 00
Second, Miss Carrie Powell, Indianapolis	3 00
Landscape in oil, specimen, Mrs. Fred Myers, Indianapolis	3 00
Second, Mrs. R. E. Ferry, Indianapolis	2 00
Sketch from nature, Miss Retta Mathews, Arlington	4 00
Second, Mrs. R. E. Ferry, Indianapolis	2 00
Fruit or vegetable, in oil, display, Mrs. R. E. Ferry, Indianapolis	5 00
Second, C. E. Spahr, Indianapolis	3 00
Flowers, in oil, display, Miss Retta Mathews, Arlington	5 00
Second, Mrs. R. E. Ferry, Indianapolis	3 00
Flowers, in oil, specimen, Mrs. R. E. Ferry, Indianapolis	3 00
Second, Miss Retta Mathews, Arlington	2 00
Original ideal figure, in oil, Mrs. R. E. Ferry, Indianapolis	6 00
Second, Mrs. Fred Myers, Indianapolis	4 00
Study from still life, Olive Rush, Fairmount	3 00
Second, Miss Retta Mathews, Arlington	2 00
Sketches from nature, water colors, display, Mrs. A. E. Ferry, Indianapolis	5 00
Sketches from nature, specimen, C. E. Spahr, Indianapolis	3 00
Second, Mrs. Fred Myers, Indianapolis	2 00
Flowers, in water colors, display, C. E. Spahr, Indianapolis	5 00
Second, Mrs. R. E. Ferry, Indianapolis	3 00
Flowers, in water colors, specimen, Mrs. Fred Myers, Indianapolis	3 00
Second, Mrs. R. E. Ferry, Indianapolis	2 00
Study, figure, water colors, Wm. H. Jordon, Indianapolis	3 00
Second, Mrs. A. E. Ferry, Indianapolis	2 00
Study, still life, water colors, C. E. Spahr, Indianapolis	3 00
Second, Mrs. Fred Myers, Indianapolis	2 00
Sketches in black and white, display, Miss Retta Mathews, Arlington	5 00

Second, Miss Retta Mathews, Arlington	$3 00
Crayon drawing, specimen, Miss Retta Mathews, Arlington	2 00
Second, C. E. Spahr, Indianapolis	1 00
Drawing from antique figure, Helen Ingraham, Indianapolis	2 00
Second, C. E. Spahr, Indianapolis	1 00
Drawing from antique head, Miss Retta Mathews, Arlington	2 00
Second, Miss Retta Mathews, Arlington	1 00
Painting on china, ornamental pieces, display, Mrs. John F. Julian, Irvington	6 00
Second, Mrs. A. E. Ferry, Indianapolis	4 00
Painting on china, Royal Worcester, Mrs. John F. Julian, Irvington	2 00
Second, Mrs. A. E. Ferry, Indianapolis	1 00
Painting on china, Dresden, Mrs. A. E. Ferry, Indianapolis	2 00
Second, Mrs. John F. Julian, Irvington.	1 00
Painting on china, set of tea or dinner plates, Mrs. John F. Julian, Irvington	3 00
Second, Mrs. R. P. Craft, Indianapolis	2 00
Painting on china, fruit set, comport and plates, Mrs. A. E. Ferry, Indianapolis	3 00
Second, Mrs. John F. Julian, Irvington	2 00
Jeweled work, Royal Worcester, Mrs A. E. Ferry, Indianapolis.	2 00
China decorated with historical forms of conventional design, Mrs. A. E. Ferry, Indianapolis	

CLASS LXIII—Table Luxuries.

Butter, 3 pounds, Anna Raab	1 50
Second, Mrs. Mary Walters, Indianapolis.	1 00
Honey in comb, 5 pounds, in most marketable shape	
Second, Augusta Moesh, N. Indianapolis	1 00
Honey, extracted, 5 pounds, in most marketable shape	
Second, Anna Raab	1 00
Maple syrup, in most marketable shape, Mrs. Belle Carpenter, Manilla	3 00
Second, Mrs. Mary Walters, Indianapolis	2 00
Bread, loaf, wheat, yeast, Mrs. Porter Wiggins, Greenfield	1 50
Second, Annie Lisher, Greenfield	1 00
Bread, wheat, salt-rising, Annie Lisher, Greenfield	1 50
Second, Mrs. Porter Wiggins, Greenfield	1 00
Graham bread, yeast, Mrs. Porter Wiggins, Greenfield	1 50
Second, Mrs. Porter Wiggins, Greenfield	1 00
Boston brown bread, Mrs. Porter Wiggins, Greenfield	1 50
Second, Miss Florence Blue, Mapleton	1 00
Corn pone, Miss Florence Blue, Mapleton	1 50
Second, Mrs. N. A. Ford, Indianapolis	1 00
Dozen rolls, Mrs. Carrie Powers, Landersdale	1 50

Second, Emily Jackson, Mapleton	$1 00
Ginger bread, Mrs. Porter Wiggins, Greenfield	1 50
Second, Annie Lisher, Greenfield	1 00
Fig cake, Mrs. Porter Wiggins, Greenfield	1 50
Second, Mrs. N. A. Ford, Indianapolis	1 00
Layer cake, orange, V. L. Wilson, Ogden.	1 50
Second, Mrs. Porter Wiggins, Greenfield	1 00
Layer cake, cocoanut, V. L. Wilson, Ogden	1 50
Second, Mrs. Porter Wiggins, Greenfield	1 00
Angel food, Mrs. Fred Hoover, Indianapolis	1 50
Second, Mrs. Porter Wiggins, Greenfield	1 00
Hickorynut cake, V. L. Wilson, Ogden.	1 50
Imperial cake, Mrs. Porter Wiggins, Greenfield	1 50
Fruit cake, Mrs. Porter Wiggins, Greenfield	3 00
Second, Annie Lisher, Greenfield	2 00
White fruit cake, Mrs. Porter Wiggins, Greenfield.	1 50
White cake, V. L. Wilson, Ogden	1 50
Second, Mrs. Porter Wiggins, Greenfield	1 00
Chocolate cake, layer, V. L. Wilson, Ogden.	2 00
Second, Minnie Akass, Indianapolis	1 00
Chocolate cake, loaf, Mrs. Porter Wiggins, Greenfield	2 00
Perfection cake, Mrs. Porter Wiggins, Greenfield	1 50
Crullers, Mrs. Carrie Powers, Landersdale	1 50
Second, Minnie Akass, Indianapolis	1 00
Cream puff, Mrs. N. A. Ford, Indianapolis	1 50
Second, Mrs. Carrie Powers, Landersdale	1 00
Cookies, Mrs. Carrie Powers, Landersdale.	1 50
Second, Annie Lisher, Greenfield	1 00
Kisses, Miss Florence Blue, Mapleton	1 50
Second, Mrs. N. A. Ford, Indianapolis	1 00
English plum pudding, Mrs. N. A. Ford, Indianapolis.	1 50
Second, Mrs. Carrie Power, Landersdale	1 00
Jellies, collection, V. L. Wilson, Ogden	3 00
Second, Mrs. E. Speer, Greensburg.	2 00
Preserves, collection, not less than one pint each, Mrs. E. Speer, Greensburg	3 00
Second, V. L. Wilson, Ogden	2 00
Fruit butters, collection, not less than one pint each, V. L. Wilson, Ogden	3 00
Second, Mrs. E. Speer, Greensburg	2 00
Canned fruit, collection, not less than one pint each, V. L. Wilson, Ogden	5 00
Second, Mrs. E. Speer, Greensburg.	3 00
Salad, meat, Emily Jackson, Mapleton	1 50
Second, Miss Florence Blue, Mapleton	1 00
Salad, fish, Florence Blue, Mapleton	1 50
Second, Miss Carrie Powers, Landersdale.	1 00

Salad, vegetable, Florence Blue, Mapleton	$1 50
Second, Mrs. Walter S. Hass, West Indianapolis	1 00
Cheese straws, Mrs. Geo. Rowland, Covington	1 00
Second, V. L. Wilson, Ogden	50
Boiled tongue, Mrs. N. A. Ford, Indianapolis	1 50
Second, Mrs. Carie Powers, Landersdale	1 00
Cooked ham, Mrs. N. A. Ford, Indianapolis	1 50
Second, Mrs. Walter S. Hass, West Indianapolis	1 00
Veal loaf, Mrs. Walter S. Hass, West Indianapolis	1 50
Second, Mrs N. A Ford, Indianapolis	1 00
Beef loaf, Mrs. N. A. Ford, Indianapolis	1 50
Second, Miss Florence Blue, Mapleton	1 00
Spiced cherries, Mrs. E. Speer, Greensburg	1 00
Second, Mrs. Carrie Powers, Landersdale	50
Sweet pickles, collection, Mrs. E. Speer, Greensburg	2 00
Pickles, mixed, Mrs. N. A. Ford, Indianapolis	1 50
Second, Mrs. E. Speer, Greensburg	1 00
Pickles, cucumber, Mrs. J. H. Spence, Covington	1 50
Second, Mrs. E. A. Parker, Indianapolis	1 00
Tomato catsup, not less than one pint, Miss Florence Blue, Mapleton	1 00
Second, Mrs. Walter S. Hass, West Indianapolis	50
Cucumber catsup, Mrs. Lida Hoover, Indianapolis	1 00
Second, Mrs. E. A. Parker, Indianapolis	50
Chili sauce, Miss Florence Blue, Mapleton	1 00
Second, Mrs. Lida Hoover, Indianapolis	50
Boston baked beans, Mrs. N. A. Ford, Indianapolis	1 00
Baked apples, Emily Jackson, Mapleton	1 00
Second, Mrs. Carrie Powers, Landersdale	50
Cranberry sauce, not less than 1 quart, Emily Jackson, Mapleton	1 00
Second, Mrs. Carrie Powers, Landersdale	50
Collection French candies, home-made, Minnie Akass	1 50
Second, Pauline Briggs, Indianapolis	1 00
Collection taffies, home-made, Mrs. Carrie Powers, Landersdale	1 50
Second, Mrs. N. A. Ford, Indianapolis	1 00

CLASS LXIV—Children's Department.

Loaf wheat bread, yeast, Mattie Nassam, Haughville	1 50
Second, Nellie Turgins	1 00
Loaf wheat bread, salt rising, Lanie Willey, Butterville	1 50
Second, Miss Josie Blue, Mapleton	1 00
Salad, meat, Lanie Willey, Butterville	1 50
Second, Miss Josie Blue, Mapleton	1 00
Salad, fish, Lanie Willey, Butterville	1 50
Second, Miss Josie Blue, Mapleton	1 00

Salad, vegetable, Mattie Nassam, Haughville	$1 50
Second, Miss Josie Blue, Mapleton	1 00
Saratoga chips, Lanie Willey, Butterville	1 50
Second, Mattie Nassau, Mapleton	1 00
Orange or lemon cake, Mary Patton, Howland	1 50
Second, Grace Akass, Indianapolis	1 00
Cocoanut cake, Mattie Nassam, Haughville	1 50
Chocolate cake, Bertha Jackson, Mapleton	1 50
Second, Nellie Turgins	1 00
Sponge cake, Mattie Nassam, Haughville	1 50
Angel Food, Mattie Nassam, Haughville	1 50
Second, Lanie Willey, Butterville	1 00
Dessert, of any kind, Lanie Willey, Butterville	1 50
Second, Mattie Nassam, Haughville	1 00
Cookies, Mattie Nassam, Haughville	1 50
Second, Lanie Willey, Butterville	1 00
Jellies, collection, Mattie Nassam, Haughville	1 50
Pickles, mixed, Nellie Turgins	1 50
Second, Mattie Nassam, Haughville	1 00
Pickles, cucumber, Mattie Nassam, Haughville	1 50
Popcorn, Lanie Willey, Butterville	1 50
Second, Mattie Nassam, Haughville	1 00
Preserves, collection, not less than 1 pint each, Mattie Nassam, Haughville	2 00
Collection French candies, home made, Lanie Willey, Butterville	1 50
Second, Grace Akass, Indianapolis	1 00
Collection of taffies, home made, Mattie Nassam, Haughville	1 50
Second, Lanie Willey, Butterville	1 00
Garment, hand made, Maud Hinsey, Pekin, Ill	1 50
Second, Sadie Chesnut, Paris, Ill.	1 00
Embroidery, cotton, Mrs. C. C. Burns, Greensburg	1 50
Second, Gracie Ingraham, Indianapolis	1 00
Embroidery, silk specimen, Sadie Chesnut, Paris, Ill.	1 50
Second, Bertha Jackson, Mapleton	1 00
Banners, Sadie Chesnut, Paris, Ill	1 50
Second, Mrs. Hulda Dille, Greensburg	1 00
Dressed doll and wardrobe, Charlotte Powell, Irvington	1 50
Crochet work, specimen, May Thornburry, Indianapolis	1 00
Second, Mrs. Hulda Dille, Greensburg	50
Crochet skirt, Mrs. C. C. Burns, Greensburg	1 50
Pair crochet mittens, Lola Hoover, Indianapolis	1 50
Second, Mrs. Geo. Rowland, Covington	1 00
Tidy, Maud Hinsey, Pekin, Ill.	1 50
Second, Sadie Chesnut, Paris, Ill	1 00
Pin cushion, Charlotte Powell, Irvington	1 50
Second, Sadie Chestnut, Paris, Ill.	1 00

Dresser or bureau set, Mabel Graham, Indianapolis	$1 50
Fancy sachets, Sadie Chestnut, Paris, Ill	1 50
Second, Gracie Ingraham, Indianapolis.	1 00
Throw or drape, Maud Hinsey, Pekin, Ill	1 50
Second, Mrs. Hulda Dille, Greensburg	1 00
Scrap book, Fred Dickson.	1 50
Second, Charlotte Powel, Irvington.	1 00
Painting on silk or satin, Sadie Chestnut, Paris, Ill	1 00
Second, Mrs. J. H. Spence, Covington	1 00
Painting on wood, Sadie Chestnut, Paris, Ill.	1 00
Second, Gracie Ingraham, Indianapolis.	1 00
Flower painting, Mrs. C. C. Burns, Greensburg	1 50
Second, Mrs. Hulda Dille, Greensburg	1 00
Study from still life, Sadie Chesnut, Paris, Ill.	1 50
Study from life, Grace Akass, Indianapolis	1 50
Drawing, original, Charlotte Powel, Irvington.	1 50
Second, Grace Akass, Indianapolis.	1 00
Drawing, copy, Sadie Chesnut, Paris, Ill	1 50
Crayon drawing, special, Gracie Ingraham	1 50
Fret sawing, Geo. Higgins.	1 50
Second, Chas. Babcock, Indianapolis.	1 00
Wood carving, Chas. Babcock, Indianapolis.	1 00
Second, Mattie Nassam, Hanghville	1 00
Woods, collection, named, Geo. Higgins	1 50
Second, Chas. Babcock, Indianapolis.	1 00
Shells, collection, named, Geo. Higgins.	1 50
Second, Chas. Babcock, Indianapolis	1 00
Collection of curiosities, Charlotte Powel, Irvington	2 00
Second, Geo. Higgins.	1 50
Collection old coins, Chas. Babcock, Indianapolis	2 00
Second, Geo. Higgins.	1 00
Collection stamps, Charlotte Powel, Irvington.	1 50
Second, Chas. Babcock, Indianapolis	1 00

INDIANA FAIRS—THEIR OFFICERS FOR 1893.

NAME OF SOCIETY.	PRESIDENT.	ADDRESS.	SECRETARY.	ADDRESS.
Indiana State Fair	V. K. Officer	Volga	Chas. F. Kennedy	Indianapolis.
Benton and Warren Agricultural Association	Henry Robertson	Boswell	W. H. McNight	Boswell.
Boone County Agricultural Association	H. M. Marvin	Rosstown	John Marvin	Lebanon.
Bourbon Fair Association	Dr. L. Johnson	Bourbon	G. D. Ettinger	Bourbon.
Bremen Fair Association	John Huff	Bremen	Henry H. Miller	Bremen.
Bridgeton Union Agricultural Association	B. F. Sellers	Bridgeton	F. M. Miller	Bridgeton.
Batesville District Fair Association	T. W. W. Summair	Spades	Dr. A. J. Cramer	Batesville.
Carroll County Fair Association	John W. Koontz	Camden	D. T. Sanderson	Camden.
Clark County Agricultural Association	T. W. Bowen	Charleston	J. M. McMillen	Charleston.
Clinton County Agricultural Association	Robert Carrich	Frankfort	Joseph Heavilon	Jefferson.
Daviess County Ag'l and Mechanical Ass'n	A. E. Johnson	Washington	W. F. Axtel	Washington.
Dearborn County Agricultural Association	Ambrose E. Nowlin	Lawrenceburg	John S. Dorman	Lawrenceburg.
Decatur County Agricultural Society	John F. Childs	Greensburg	Ed. Kessing	Greensburg.
Delaware County Ag'l and Mechanical Society	Wm. H. Woods	Muncie	M. S. Claypool	Muncie.
Eastern Indiana Agricultural Association	N. B. Newman	Kendallville	J. S. Conlogue	Kendallville.
Elkhart County Agricultural Society	F. B. Minnich	Goshen	E. E. Drake	Goshen.
Fountain, Warren and Vermillion Ag'l Ass'n	E. H. Nebeker	Covington	W. T. Ward	Covington.
Fulton County Fair Association	John W. Black	Rochester	M. A. Baker	Rochester.
Gibson County Agricultural Society	Robt. Mitchell	Princeton	S. Vet Strain	Princeton.
Grant County Agricultural Society	George Dicken	Marion	Henry Hamaker	Marion.
Green County Central Agricultural Society	S. W. Axtell	Bloomfield	Theo. T. Pringle	Bloomfield.
Grange Jubilee Agricultural Association	R. H. Wood	Madison	Thos. Watlington	Madison.
Green County Agricultural Society	Jas. Moss	Linton	D. J. Terhune	Linton.
Hamilton County Fair Association	John S. Kercheval	Sheridan	Will Woods	Sheridan.
Hancock Agricultural Association	John Ward Walker	Greenfield	W. P. Bidgood	Greenfield.
Harrison County Agricultural Society	J. A. Miller	Corydon	T. S. Getzendanner	Corydon.
Henry, Madison and Delaware Fair Association	E. L. Elliott	Middletown	F. A. Wisehart	Middletown.
Jackson County Agricultural Association	Ed Marsh	Seymour	C. A. Saltmarsh	Seymour.
Jay County Agricultural Joint Stock Company	G. F. Gemmill	Pennville	Geo. W. Bergeman	Portland.
Jefferson County Fair Association	J. M. Cravens	Madison	S. E. Haigh	Madison.

INDIANA FAIRS—THEIR OFFICERS FOR 1893—Continued.

NAME OF SOCIETY.	PRESIDENT.	ADDRESS.	SECRETARY.	ADDRESS.
Jennings County Joint Stock Agricultural Ass'n	James W. Myres	Butlerville	Fred. H. Nauer	North Vernon.
Johnson County Ag'l and Horticultural Ass'n	Wm. M. Province	Providence	W. S. Young	Franklin.
Knox County Ag'l and Mechanical Society	W. W. Berry	Vincennes	James W. Emison	Vincennes.
Kentland Agricultural Association	G. W. McCray	Kentland	W. D. Drake	Kentland.
Lake County Agricultural Society	M. J. Brown.	Hebron	W. C. Nicholson.	Crown Point.
Laporte County Agricultural Association	John Wall.	Laporte	J. Veries Dorland.	Laporte.
Marion County Ag'l and Horticultural Society	J. W. Billingsley	Indianapolis	Ida F. Richardson	Indianapolis.
Maxinkuckee Agricultural Association	V. A. Lidecker	Rutland	E. S. Freese	Twin Lakes.
Miami and Fulton Counties District Fair Society	Jas. W. Hurst	Macy.	Ira B. Hurst.	Wagoner.
Monroe County Ag'l and Horticultural Ass'n	W. P. Dill	Bloomington	C. R. Worrell	Bloomington.
Montgomery County Union Agricultural Ass'n	John L. Davis.	Crawfordsville.	W. W. Morgan	Crawfordsville.
Northeastern Indiana Agricultural Association	R. M. Lockhart	Waterloo	J. C. Johnson	Waterloo.
Northern Ind. and Southern Mich. Fair Ass'n.	Dixen W. Place	South Bend	C. G. Towle	Mishawaka.
Noble County Agricultural Association	W. H. Bake	Ligonier.	J E McDonald.	Ligonier.
Oakland City Fair Association	B. C. Farmer	Oakland City	W. C. Miller.	Oakland City.
Owen County Agricultural Association	B. E. Allison	Spencer	J. B. Workman	Spencer.
Posey County Agricultural Association	J. D. Owen.	New Harmony.	T. W. Wilson	New Harmony.
Pike County Agricultural Society	Leslie Lamb.	Petersburg.	J. W. Broomfield	Petersburg.
Putnam County Agricultural Association	J. C. Bridges.	Bainbridge	F. C. Fosher.	Fincastle.
Parke County Agricultural Society.	Joseph Brockway	Armiesburg	J. Edgar Allen	Rockport.
Porter County Agricultural Society	Wm. Rigg.	Valparaiso	E. S. Beach	Valparaiso.
Randolph County Agricultural Society	Thos. G. Mullen.	Clarke.	D. E. Hoffman.	Winchester.
Rush County Agricultural Society	O. M. Smith	Gings	J Q. Thomas	Rushville.
Sullivan County Agricultural Society	T. J. Mann	Graysville.	Benj. Davis	Sullivan.
Steuben County Agricultural Association	Peter W. Russell	Angola	H. L. Huston	Angola.
Switzerland and Ohio Counties Ag'l Society.	A. D. Cunningham	Florence.	Wm. H. Madison	E. Enterprise.
Spencer County Agricultural and Industrial Fair	J. C. Haines	Lake.	P. C Jolly.	Chrisney.
Shelby County Joint Stock Fair Association.	David P. Wilson	Shelbyville	E. E. Stroup.	Shelbyville.
Spencer County Fair Association.	B. F. Bridges	Rockport	A. D. Garlinghouse	Rockport.
St. Joseph County Agricultural Association	U. W. Gorman	Rolling Prairie	W. H. Deacon.	New Carlisle.

Tippecanoe County Agricultural Association	Cyrenius Johnson	Lafayette	Adam Wallace	Lafayette.
Tri-County Fair Association	S. J. Noftzer.	N. Manchester	Dan W. Krisher.	N. Manchester.
Tri-State Fair Association	F. C. Davis	Evansville.	T. J Frazer	Evansville.
Tipton County Fair Company.	W. A. Maze	Sharpsville	Lee Nash	Tipton.
Washington and Clark Counties Fair Ass'n	Samuel Koener	Martinsburg.	R. E. Elrod	Pekin.
Washington County Fair Association	Elisha D. Williams	Salem	E. W. Menaugh.	Salem.
Wabash County Agricultural Association	T. H. Miller	La Fountain.	George B. Fawley.	Wabash.
Warren County Agricultural Association	W. A. Judy	W. Lebanon	F. J. Goodwin.	W. Lebanon.
Whitley County Agricultural Association	Val. Brown	Columbia City.	F. J. Heller	Columbia City.
Warren Tri-County Agricultural Association	James Good	Warren	J. H. Thompson.	Warren.
Wayne County Agricultural Association.	John Bowman	Hagerstown	John M. Hartley	Hagerstown.
Wayne, Henry and Randolph Ag'l Association	Mart Cranor.	Williamsburg	F. A. Harter.	Dalton.
Vigo County Fair Association	Frank McKeen	Terre Haute.	Chas. C. Oakey	Terre Haute.

INDIANA FAIRS—NUMBER OF EXHIBITS FOR 1893.

NAME OF SOCIETY.	Horses.	Mules.	Cattle.	Sheep.	Swine.	Poultry.	Mechanical.	Agricultural and Horticultural.	Woman's.	Miscellaneous.	Special.	Total.
Benton and Warren Agricultural Society	304	17	102	160	209	254	23	131	1,253	. . . .	. . . .	2,453
Boone County Agricultural Association	122	12	94	71	310	1,084	. . . .	. . . .	. . . .	. . . .	. . . .	1,693
Bourbon Fair Association	104	. . . .	65	92	62	386	. . . .	428	953	. . . .	. . . .	2,090
Bremen Agricultural Association	67	. . . .	12	33	15	102	. . . .	380	625	701	46	1,981
Clinton County Agricultural Society	257	8	65	56	101	605	117	127	841	31	8	2,216
Dearborn County Agricultural Association	100	9	59	63	51	73	12	98	48	127	. . . .	740
Eastern Indiana Agricultural Association	120	. . . .	161	187	142	525	55	482	2,460	432	. . . .	4,564
Elkhart County Agricultural Society	65	. . . .	16	30	35	33	. . . .	369	1,071	30	. . . .	1,649
Fountain, Warren and Vermillion Ag'l Assn.	150	11	19	43	65	98	25	84	810	. . . .	. . . .	1,305
Fulton County Fair Association	72	. . . .	73	45	58	100	20	213	848	. . . .	. . . .	1,429
Gibson County Agricultural Society	230	30	90	85	150	100	175	775	2,300	75	. . . .	4,090
Green County Agricultural Society	144	29	33	44	81	146	9	152	420	54	. . . .	1,112
Hancock County Agricultural Association	198	2	73	46	90	412	42	292	681	43	. . . .	1,879
Harrison County Agricultural Society	585	38	101	105	105	90	9	689	994	34	.	2,750
Jackson County Fair Association	148	3	30	34	58	18	2	71	18	257	116	785
Jay County Agricultural Joint Stock Co.	175	3	122	143	186	275	15	604	2,300	.	8	3,831
Johnson County Agr'l and Hort'l Assn.	207	11	57	43	98	292	23	298	1,127	258	105	2,519
Knox County Agr'l and Mech'l Society	296	25	146	68	162	217	14	918	2,596	. . . .	.	4,442
Lake County Agricultural Society	160	. . . .	80	54	34	23	1	32	170	. . . .	. . . .	544
Laporte County Agricultural Association	102	. . . .	31	32	47	53	19	72	417	42	8	823
Owen County Agricultural Association	32	. . . .	. . . .	. . . .	. . . .	19	1	7	. . . .	75	. . . .	134
Monroe County Agr'l and Hort'l Assn.	167	6	22	47	32	85	.	131	250	.	150	890
Posey County Agricultural Society	186	7	14	16	27	37	18	190	771	379	28	1,673
Pike County Agricultural Society	227	8	57	30	39	83	3	644	479	15	. . . .	1,585
Putnam County Agricultural Association	171	13	57	60	103	158	16	271	547	129	. . . .	1,525
Porter County Agricultural Society	108	. . . .	28	16	20	12	4	82	265	29	. . . .	564
Randolph County Agricultural Society	76	3	51	88	42	208	11	198	425	43	6	1,151
Steuben County Agricultural Association	50	38	92	112	29	160	28	1,468	942	107	. . . .	3,026
Switzerland and Ohio Counties Agr'l Society	191	26	39	52	24	65	6	249	547	78	. . . .	1,277
Shelby County Joint Stock Fair Assn.	219	20	146	76	122	991	74	682	1,186	. . . .	. . . .	3,516
St. Joseph County Agricultural Association	60	. . . .	11	20	15	20	150	90	335	. . . .	100	801
Tipton County Fair Company	473	61	167	121	217	451	51	282	1,201	. . . .	. . . .	3,024
Washington and Clark Counties Fair Assn.	178	118	40	103	46	26	12	137	362	. . . .	. . . .	921
Wabash County Agricultural Association	177	. . . .	38	46	49	129	2	148	784	. . . .	. . . .	1,373
Warren Tri-County Agricultural Assn.	256	6	30	75	38	175	. . . .	250	650	100	. . . .	1,574
Wayne County Agricultural Association	130	. . . .	45	46	77	237	46	87	810	29	. . . .	1,507

INDIANA FAIRS—PREMIUMS PAID IN 1893.

NAME OF SOCIETY.	Horses.	Mules.	Cattle.	Sheep.	Swine.	Poultry.	Mechanical.	Agricultural and Horticultural.	Woman's Department.	Miscellaneous.	Special.	Total.
Benton and Warren Agr'l Society	$3,086 95	$62 55	$594 10	$179 10	$259 20	$96 10	$29 25	$36 50	$138 00	....	....	$4,581 75
Boone County Agricultural Society	718 00	100 00	360 00	176 00	250 00	114 00	..		....	..	....	1,918 00
Bourbon Fair Association	966 50	....	133 25	96 50	62 50	59 25	..	132 20	136 50	$18 25	....	1,604 95
Clinton County Agricultural Society	1,053 50	..	39 25	71 00	30 00	30 80	....	93 10	154 70	55 45	$116 15	1,636 95
Bourbon County Agricultural Ass'n	1,581 50	27 00	379 00	120 00	155 00	135 25	59 00	78 00	298 50	83 00	80 00	2,996 25
Eastern Indiana Agricultural Ass'n	622 00	27 00	429 00	156 00	132 50	62 00	..	49 00	62 50	104 00	...	1,644 00
Fountain, Warren & Vermillion Ag. As	426 00	39 00	117 00	90 00	217 00	52 00	15 00	64 00	284 00	....	....	1,304 00
Fulton County Fair Association	625 00	....	160 00	66 00	62 00	43 80	13 40	261 95	...		...	1,232 15
Gibson County Agricultural Society	1,200 00	100 00	300 00	100 00	125 00	75 00	200 00	350 00	665 00	117 75	100 00	3,232 75
Green County Central Agr'l Society	344 00	.	138 00	64 00	155 00	89 50	10 00	91 50	350 00	44 00	128 00	1,414 00
Green County Agricultural Society	991 50	52 50	157 50	84 00	120 50	105 50	23 00	107 25	187 50	47 50	....	1,876 75
Hancock County Agricultural Ass'n	1,520 00	20 00	380 00	125 00	240 00	183 00	60 00	136 00	269 00	46 00	....	2,980 00
Harrison County Agr'l Society	1,069 00	70 00	271 00	102 00	159 50	46 00	27 00	276 50	279 25	47 75	....	2,348 00
Jackson County Fair Association	288 00	17 00	227 00	85 00	108 00	15 75	5 00	30 75	2 00	82 55	30 00	891 05
Jay County Agricultural Joint Stock	570 00	17 50	386 00	231 50	314 00	142 00	60 00	113 00	567 00	1,460 00	185 00	4,046 00
Johnson County Agr'l & Hort. Ass'n	622 10	31 00	336 60	89 00	293 60	145 10	35 45	153 31	1,221 33	81 60	132 75	3,141 82
Knox County Agr'l and Mech. Soc'y	819 00	50 00	844 00	295 00	405 00	234 00	11 00	356 50	446 00	2,813 00	..	6,273 50
Laporte County Agricultural Ass'n	327 00	....	112 60	29 00	99 00	33 10	35 90	86 60	305 70	1,060 00	45 00	2,133 90
Owen County Agricultural Ass'n	..	....		..	..	12 00	1 00	..	..	45 00	.....	58 00
Monroe County Agr'l & Hort. Ass'n	268 00	....	35 00	50 00	45 00	45 00		58 00	70 00	1,397 00	....	1,968 00
Posey County Agricultural Society	1,307 00	22 50	53 50	37 00	75 00	38 00	26 00	121 50	271 50	78 00	37 00	2,067 00
Pike County Agricultural Society	955 00	44 00	211 00	84 00	72 00	86 00	6 00	190 00	143 00	10 00	..	1,801 00
Putnam County Agricultural Ass'n	150 66	18 78	87 71	53 28	83 94	34 00		41 70	147 19	25 20	47 50	689 96
Randolph County Agr'l Society	668 75	750 00	119 38	107 41	93 24	57 64	21 42	40 95	35 84	37 00	15 75	1,947 18
Rush County Agricultural Society	1,931 01	66 00	400 00	155 00	253 00	151 00	60 00	267 75	423 25	551 70	61 00	4,319 71
Sullivan County Agricultural Society	576 45	38 00	240 50	95 50	96 50	64 50	.	62 00	292 00	27 00	.....	1,491 45
Steuben County Agricultural Ass'n	154 00	746 25	279 00	165 00	69 00	70 75	21 00	249 75	203 65	31 40	49 90	2,039 70
Switzerland and Ohio Co. Agr'l Soc'y	1,400 50	60 00	167 00	115 00	82 00	35 00	.	116 50	236 25	78 00	.	2,290 25
Shelby Co. Joint Stock Agr'l Ass'n	1,302 00	49 00	323 50	122 00	176 80	232 00	26 00	106 50	343 00	5 60	1,200 00	3,885 90
St. Joseph County Agr'l Ass'n	67 75	...	17 00	20 00	8 00	57 00	.	17 50	80 00	1 50	65 75	282 50
Tipton County Fair Company	480 00	25 00	165 60	51 20	102 40	41 60	10 30	24 70	201 60	....	.....	1,102 40
Wash. and Clark County Fair Ass'n	115 80	21 16	84 18	28 08	15 10	13 11	25 75	28 40	92 34	....	.....	423 92
Wabash County Agricultural Ass'n	507 00	.	139 50	81 00	126 00	64 50	.	74 00	367 75	.....	.....	1,359 75
Warren Tri-Country Agr'l Ass'n	1,225 00	10 00	190 00	140 00	150 00	80 00	..	100 00	335 00	65 00	....	22 95
Wayne County Fair Association	322 65	....	205 65	74 70	163 35	84 60	31 05	41 85	167 90	60 42	....	1,152 17

INTRODUCTORY.

Preceding the reports of counties and districts throughout the State of Indiana, after a careful examination of the reports as presented from these points, it is shown that similar causes affected the various fairs throughout the State during 1893. For the purpose of condensing this part of the report, I here submit that, generally speaking, the year 1893 was not a successful year for county and district fairs, the causes being: 1st. The attraction to the World's Columbian Exposition. 2d. The National Encampment of the Grand Army of the Republic, held at the Capital. 3d. The extreme drought throughout the greater part of the State from July until September. 4th. The financial stringency that overtook the country during the summer season, with, perhaps, some minor and local influences, have made it difficult for managers of fairs to succeed in paying premiums in full without a draft upon resources that had been accumulated in former years or from outside resources.

It appears that the fairs held early in the season, or during the month of August and the first weeks in September, were, as a rule, the more successful fairs, and this, perhaps, is attributable to two causes, one of which is that the National Encampment had not then taken place, and the other that the stringency of money affairs was not so seriously felt at this time. It is a satisfaction to report that a very great per cent. of the fairs throughout the State paid premiums in full, and this fact is one that makes the outlook for agricultural exhibits brighter, and it is believed that the experience of the last year, however severe in its character, will have a strong influenee for good, and will be a lesson to fair managers that will steer them safely over financial difficulties and impediments for many years to come. Some of the organizations in the State, because of their proximity to the World's Fair, determined, early in the year, that they would abandon their exhibition for the year 1893. Other fairs similarly situated, though anticipating that they would encounter obstacles that did not usually come in their course, believed that it was better to hold their fairs and let their exhibitors and patrons understand that they would depend on the exhibit being what all fairs should be—annual exhibits. Thus briefly summing up the causes that affect, and the results that were obtained by the fairs throughout Indiana, we herewith append such matter of the reports from these counties and districts as touch upon the agricultural, mechanical, mining and live stock interests of their respective localities.

COUNTY AND DISTRICT REPORTS.

BOURBON DISTRICT—MARSHALL COUNTY.

This county had a fair crop of good wheat this season; the corn crop on the low lands was heavy, but on the high dry lands very light; oat crop light; the very dry weather damaged the corn and oats on the high dry lands, otherwise the crop of both would have been heavy.

A large amount of tile draining has been done in the county, and lands that a few years ago were thought to be of little value have proven, after underdraining, to be highly productive and among the most valuable lands in the county.

BREMEN DISTRICT FAIR.

The severe drought throughout Northern Indiana from July 10th to September 20th seriously affected all farm interests.

Pasturage during the latter part of the drought was so scarce that farmers had to feed their stock. It also had a damaging effect on corn and all root and vegetable products.

The wheat both in quality and quantity was a fair crop, averaging about eighteen bushels per acre. Corn averaged about thirty-two bushels; oats, twenty-eight bushels; potatoes, about thirty-five bushels. Hay was gathered in excellent condition and averaged two tons per acre; cloverseed, two and one-half bushels per acre. The apple crop was an entire failure, as it has been for the three previous years; pears and small fruits were more abundant, but only about two-thirds of a crop. Fortunately our farmers were not molested by any diseases among their stock during the year. Prices of stock are very low, except hogs, but they are scarce through this part of the country.

Our farmers, aided by the Township Trustees, do a great deal of gratis work in graveling the main roads, and if they continue this good work, it will be but a few years till our roads are first-class throughout the country.

Underdrainage is receiving more attention every year, and, as a result, large tracts of land that a few years ago were productive of frogs only, produce the finest crops of corn and wheat. In order to secure a better outlet, the north branch of Yellow River is proposed to be straightened and cut wider and deeper for a distance of twelve miles. The preliminary surveys are made and work will be commenced as soon as the apportionments are made.

The growing crops appear in a much better condition than they did a year ago, and, owing to the mild winter to this date, farm work is much advance of the previous year at this time.

BRIDGETON UNION DISTRICT FAIR.

This district, composing Parke, Putnam, Clay and Vigo, is as rich in natural resources as any in the State. We have the rich bottom lands, which are very productive in all kinds of cereals, and especially adapted for the growing of corn. Our uplands, or clay soil, is well adapted for grazing purposes, producing bluegrass in abundance. All over the country may be seen fine herds of cattle and sheep. It is here the greatest coal fields in the United States are being developed.

BENTON AND WARREN DISTRICT FAIR.

The principal crops of Benton and Warren counties are corn, oats and hay, there being comparatively little wheat raised. The oat and hay crops were up to the average or nearly so. Corn was but little, if any, above one-half crop. Wheat was about up to the average, and the wheat sown is in good condition. Live stock is healthy and generally in thrifty condition. The hog crop is short, not being more than one half what it has been in former years. Cattle about as usual. Of horses we have a large surplus, for which there seems to be no demand. Prices for grain and live stock, except hogs, are not satisfactory, and the depression which seems to be generally affecting other lines of business is also being felt in our farming community.

DELAWARE COUNTY.

With us the year 1893 has not been an agricultural year. An excessive drouth has not added to the fullness of our harvest. Withal we have done fairly well, along with our neighbors; the burden has not been harder for us to bear than for them. Our hay harvest has been good in quantity and quality. Oats gave us a fair yield only, with good grain. The corn crop is larger than last year, but of a very inferior article. The outlook for wheat is better than anticipated. It should be ashamed to show itself under present quotations.

EAST ENTERPRISE—SWITZERLAND COUNTY.

The season was not the most favorable for agriculture (too much dry weather), yet nature has dealt kindly with us, and the ills that we suffer are attributable to man's mismanagement and no fault of Providence. Wheat, oats and hay were good to fair average crops. Corn was also nearly an average, perhaps a little short. Potatoes were a bad failure. Most of the late fall crops were cut short. Tobacco about two-thirds crop. Fruit of most kinds fair, though apples were a failure. Of live stock the country is well supplied with horses, mules, cattle, sheep and poultry, but prices are not at all satisfactory. Hogs are more plentiful than last year, prices tending downward. Stock is generally in good condition, late pasturage good and no severe winter weather so far (December 26th) and no snow; roads good. About the usual breadth of wheat sown last fall, much of it sown late, yet it looks fairly well at this writing. The most discouraging feature to this industry is the prevailing price; the farmer can hardly afford to raise wheat, either with or without fertilizers, at fifty cents per bushel.

Our people still talk of free turnpikes and other public improvements, but we shall look for nothing more tangible than this wind work while the present conditions prevail. We have but few factories or manufacturing establishments in our district, the largest of these has shut down awaiting results, and thus a few of our people are thrown out of employment. But by far the greater part of our people are farmers, and the farmer can always find something to do if he wants to work. If it is not always remunerative it suffices to keep him out of mischief. Outside of our county poor-houses we have no public free lunch or soup houses, the masses of our people are well provided for, and there is no real destitution among us. Ours is truly a heaven-favored county. As proof of this we would state that numbers of people who emigrated from this region seeking the Eldorado elsewhere, have returned, like the Prodigal, rejoicing to get back to the old home, and saying that Switzerland and Ohio counties are the best country after all.

GRANT COUNTY.

The spring of 1893 saw farmers and farms in a condition most excellent, and with prospects most encouraging. This continued until past the middle of summer. In the meantime wheat, oats and hay had been harvested, the yield was above the average, as was also the quality. Up to this time there was no general cause for any complaint except the low price of wheat.

About the first of August the effect of what afterwads proved a long drought began to be apparent. This drought continued throughout a period of over ninety days, with but two local showers. Apprehensions that fall pasturage would fail were amply realized, and corn generally failed. In low, black ground, inclined to be wet, this natural condition operated to withstand the lack of rain, and such fields as these, which comprised only about one-fourth of the acreage, yielded an average crop, but on the other three-fourths of dry and upland ground the failure of crops was almost total. Berries, small fruits, melons and market stuff all failed.

Fewer cattle were kept for winter feeding than usual, the lack of feed requiring their sale early in the fall. Of horses there are probably a greater number in the county than ever before, there being no demand they could not be disposed of.

Of sheep there are about the same number as for the past two years, the owners not wishing to increase their flocks under the present outlook, nor to dispose of their holdings at the prevailing prices.

Of hogs, there were never so few in late years. The usual number were bred for winter market, but the failure of the corn crop compelled them to be sold early at light weights.

Economy and thrift of past years will, in most instances, enable our people to withstand the losses of the year, and a good crop the coming year will see them in as good shape as ever, though a few have been affected most disastrously.

GRANGE JUBILEE, JEFFERSON COUNTY.

Owing to extreme wet weather the spring crops were planted very late, and the protracted drouth in the summer, were the causes of many of our crops falling below the average.

Corn is very near an average crop. Wheat a full average crop and of fine quality. Irish potatoes not more than one-half crop. Sweet potatoes three-fourth crop. Onions and onion sets a lighter crop than usual. Beans about one-half of an average crop, but a larger acreage planted than ever before. Tobacco cut short by drouth, but of good quality. The fruit crop was almost an entire failure; some few peaches and pears. The berry crop was also light.

The question of improving our roads is receiving the attention of our farmers generally, although no very radical measures are being agitated, but a more careful and economical system of applying the road funds is being practiced, together with volunteer work, which is beginning to make quite a change in the way of better roads.

New orchards of the various kinds of fruit are still continued to be set. The live stock interest is not lagging.

Owing to the low price of farm products and the depression in business generally, there is not the improvement in farm buildings that there has been in former years, but the farmers have reason to be thankful, as they are weathering the storm better than many of the other callings, and are hopeful of a better time coming.

LINTON—GREENE COUNTY.

The corn, wheat and oat crops were perhaps a full average, while the hay crop alone was short. Thousands of acres of new lands have recently been placed in cultivation by open ditches and tiling, thus almost doubling the corn belt in Greene County. Although financial embarrassments will characterize the year 1893, the farmers and business men generally passed through the trying ordeal without serious loss, and no failures occurred in this part of the county.

The value of first-class agricultural lands has steadily advanced, and farmers are generally prosperous. Twenty-three years ago when our first Fair was held at Linton, we had a population of less than two hundred while fully one-half of the surrounding country was in its primitive state. To-day a population of twenty-three hundred greet and welcome the visitor to the prosperous town of Linton, while the adjacent country represents one of the most inviting fields in the State, for the remuneration of labor and capital. Five large coal mines and two small ones within a radius of two miles of Linton furnish employment for one thousand men and is a factor in our prosperity which can hardly be estimated. A half million dollars of wealth was dug from beneath the earth near Linton in the year 1893 and distributed through the channels of trade. For mineral wealth and agricultural advantages the western half of Greene County has no equal. A spirit of enterprise characterize our citizens, and a movement for better roads has already made considerable progress. As an educator the Linton Fair may justly claim an important place with those auxiliaries which have wrought the many changes in the geographical appearance of the town and surrounding country. While adversities have often followed the financial management of the annual exhibition yet the lessons learned have not been forgotten, and to the future we have looked with a confidence unshaken. Too much credit can not be given those whose personal sacrifice of time and money have maintained and carried forward the annual Fair. They have been men like the pioneers of old, who have led the onward march of civilization.

SHERIDAN—HAMILTON COUNTY.

The wheat crop as to quality was the best for a number of years, as to quantity about an average.

Corn was not better than one-half crop, as to quality, good, as to acreage, about same as last year.

Oats were splendid both as to quantity and quality, with an average acreage.

Rye was very good as to quality but a little short on quantity, with an average acreage.

The hay crop was short of 1892, as much as one-fourth or more, and of only medium quality.

Potatoes, cabbage and all other garden truck was less than half crop, on account of the exceedingly dry weather.

Our roads in this locality are on the improve with a prospect of the good work continuing.

Live stock of all kinds is on the improve in this section, especially is this true as regards horses and cattle.

The farmers of this and the adjoining counties are in very fair financial condition, with the prospects of better crops and a better market for their produce.

In conclusion will say, the agricultural interests of this section are improving. The farmers are aware that at this enlightened age they must be up and doing.

JAY COUNTY.

The success of our fair is an index of the energy, progress and prosperity of our county.

Every year shows an improvement in the breeds of horses, cattle, sheep and hogs, a marked improvement in the agricultural staples.

Our lands are well adapted both for farming and stock raising purposes.

But few counties possess more miles of free gravel roads and better drained soil.

Recent developments show that Jay County's oil field is the largest field in the State.

Portland, the county seat, is a beautiful city in the center of this rich agricultural region.

KNOX COUNTY.

The condition of agriculture in this county at this time is fair. Last year's wheat crop was about an average—about twenty bushels to the acre. The corn crop was short, owing to drouth, averaging about three-fifths of a crop.

Hogs are about 40 per cent. short of the usual number, sheep about 15 per cent. short and cattle about 20 per cent. short.

The apple crop was a complete failure and the peach crop almost as bad. Of small fruit there was a fair supply.

The acreage of growing wheat is about 20 per cent. less than former years, and its condition averages about 80 per cent.

BENTON COUNTY.

The continued rains in spring and unprecedented drouth and hot weather of summer cut our corn crop seriously, not over twenty-five per cent of a crop being harvested this fall. Oats, however, never were better, I am sure averaged above fifty bushels per acre. Hay was light. No wheat of any consequence being raised in this county. Horses are plenty and no demand for them, consequently are very cheap. Hogs and cattle not very plenty and command remunerative prices. The agricultural conditions of our county are steadily and constantly improving. In the past ten years hundreds of acres of land that were formerly marshes and ponds have been retrieved by under-drainage, "now blossom like the rose," and are producing fine crops.

The road system has considerably improved in the past few years by hauling gravel and sand from our open ditches. I think, probably, twenty-five or thirty miles of gravel road built this last fall. Let the good work go on.

MIAMI AND FULTON COUNTIES.

The condition of agriculture has been very unfavorable in this vicinity for three years. Corn, oats, potato and pasture crops were badly damaged by drouth. Apples almost an entire failure; all of which causes a scarcity of money among farmers. A scarcity of feeding grain appears to be worse for farmers than a loss of a wheat or other crop that is sold for money. There was a good hay and wheat crop, but the price of wheat being low does not help much. Clover seed crop fair with good prices. The present prospect for wheat is good, yet farmers can not be very prosperous next year on account of a scarcity of stock, which will accumulate with a few years of good crops. No trouble from diseases among farm animals of any kind.

MONTGOMERY COUNTY.

The crops the past year, taken as a whole, were not up to the average in our county owing to the extreme dry weather, wheat. corn, oats, grass and potatoes all being affected more or less. But on the whole there is plenty for home consumption with the exception of the potato crop, which is being supplied from other sources. One of the important factors in the success of our agricultural society is the fact that Montgomery County has more miles of free gravel road than any county in the State, and the attendance at our fairs is due largely to the fact, as we have visitors who come in their carriages and buggies for twenty miles or more in all directions.

PIKE COUNTY.

Wheat was hardly up to the average in point of yield and was not first class. Corn was light this year on account of the wet spring and dry summer. Fruits were not plentiful this year.

PUTNAM COUNTY.

A fine crop of hay was harvested in this county this year. Corn not an average in quantity nor quality. Oats scarce. Owing to the extreme drought the potato crop was small. Wheat is looking fairly well. This county is noted for its blue-grass and thoroughbred cattle. In the northern part its principal roads are all graveled, and the people are beginning to discuss the question of good roads on the south. Well-improved farms, thriving villages and enterprising people are found all over the county.

PORTER COUNTY.

The conditions of the soil for spring sowing and planting were fairly good up to the middle of July, rainfall being about sufficient for steady growth. But after this period there were only very light local showers, finally terminating in a general continued drought, until crops (excepting hay) were past recovery, resulting in light yields, but quality was good.

The fall season was late, and favorable to cultivation and plant growth.

The light yields of crops and exceeding low prices, with the exception of hay and the hog, the latter being in small number compared with the usual supply, caused a stringency in money, necessitating the husbandman to limit his expenditures to actual wants, with just a little for pleasures.

STEUBEN COUNTY.

The very dry weather experienced in this locality during the crop-developing part of the season caused a very remarkable shortage in the yield of all crops except wheat, which was harvested before the drought had fairly set in, has had a discouraging effect on farmers.

Considerable improvement is noticed in farm buildings, and appearances seem to indicate that the farmers generally of this section are beginning to study farming as a science, and there is no reason to doubt that when a reasonable part of the work is done with the head, farming will be a more successful business, and a general improvement will be noticeable in the character of the crops and stock raised.

TIPPECANOE COUNTY.

The crop reports for our county will not be up to our usual high standard. During the early spring it was wet, and then the drought set in, which made the average of our crops much below our usual average. In some localities the corn had no rain from the time it sprouted, which made the corn crop run from about one bushel to the acre in some localities to sixty bushels per acre in more favored ones, the most of it, however, running from ten to thirty bushels per acre. For the same reasons oats and wheat were also below the usual average. The prices for wheat have ranged from 50 cents to 85 cents per bushel, for corn from 30 cents to 45 cents per bushel, and oats from 20 cents to 25 cents per bushel. Owing to the scarcity of feed, and shortness of pasture, the prices for horses, cattle, and other live stock, have been much lower than usual. Notwithstanding all the foregoing the people of our county are in a fairly prosperous condition; much more so than the average of the counties over the State. Should the season of 1894 be a favorble one we see no reason for feeling any alarm about our future prosperity.

TIPTON COUNTY.

In the past few years the local interest in speed has been greatly increased, and while as yet this county can claim no special note as a producer of race horses, yet it has been the effort of many of our farmers to place upon the market good, sound roadsters at living prices. As to hogs and cattle, our farmers are making great advancement in the improvements of these kinds of stock. They are testing all the newer breeds, and are sparing neither of pains or money in the selection of suitable pure-bred sires. The mutton and wool-growing industry is not receiving the attention that it should. Fears of impending legislation has caused the disposal of many of our large flocks, and owing to the uncertainty of future profit in sheep, there is not manifested that care and attention that is always productive of the best results. Our corn crop for this year is good in quality, though somewhat short in quantity on account of the drought. We had an excellent wheat crop, much of which is stored in granaries and held for better prices. The acreage of wheat sown this fall is not large, but it never went into the winter in better condition. Oats and rye, though not staple crops, never fail in Tipton County, and were more than up to the average. Potatoes and fruits were perhaps as near a failure as we have ever had, yet both were produced in considerable quantities.

The condition of the people financially, and especially that of the farmers, is fairly prosperous. Though money has been tolerably scarce there have been but few failures on the part of our business men, and the people are meeting all their obligations with a promptness unexampled when times were easier.

VIGO COUNTY.

Vigo county endured prolonged rains through the spring into June. It then suffered from drought. The wheat crop, which escaped the latter, was somewhat dwarfed by the wet, and the wheat, at least on clay lands, did not fill to a plump berry; in consequence, the quality was below the average, much of it falling to grade No. 2. In addition to shrinkage in weight, the season's prices opened at 55 cents, which, at one slash, cut off the profit.

The corn crop comparatively relieved the farmer, the price comparing well with the times, though the crop was short at least a quarter. Half, or more, was white corn, which formerly commanded a better price than the mixed from hominy mills, but as the distilleries pay as much for mixed as white will command, prices are now even. The quality was good, but the crop was late.

Hay was a fine crop, above the average; starting at a fair price to fall back to a present local rate of $8 to $9. Oats were a very good crop.

The gardeners, now a very large class in this county, had a very poor and disappointing year. They had reason to expect a great demand on account of the World's Fair, but failed to realize the crop on account of the weather, and very often fell short on the price. Immense quantities of melons set out sometimes failed to yield one-third of the expectation, and again shipments to Chicago did not return much over expenses to small shippers.

Potatoes were a failure and small fruits were cut short.

Poultry is a very fine and important product of this county, and local shippers handle great quantities. They claim to have done a heavy business this year, although prices have ruled very low, and are now, when rates are usually strong, much below the average of last year. Farmers do not find much profit, if any, in turkeys at 6 to 7½ cents wholesale, gross.

We find one evidence of hopefulness in the fact that many farmers have reconsidered their determination not to plant wheat and seem to be doing the usual wheat sowing.

The Farmers' Institute, which has been fairly well sustained by the county, has been taken up for this winter with great enthusiasm by the farmers themselves, and will show much improved results and larger attendance than ever before.

WAYNE COUNTY.

Owing to the continued wet weather in the spring, there was not the usual acreage of corn planted this year, and what was planted did not produce over half a crop, and of inferior quality. The acreage of wheat was large, yield good and quality excellent. The oats crop was large and good quality. A fair crop of hay, but potato crop was very light.

The fruit crop, to take county over, was very light, with a fair yield of pears in some localities, and very good crop of some varieties of grapes.

Taking into consideration the light crop of corn and low price of wheat, and almost all other farm products, it can hardly be called a prosperous year for the farming community.

METEOROLOGICAL TABLES.

TABLE I.

Monthly and Annual Meteorological Summaries for 1893 as deducted from the records of Observation made by the Weather Bureau at Indianapolis, Ind. Appropriate headings show the nature of the data in the columns immediately underneath.

1893. MONTHS.	Mean Barometer Reduced to Sea Level—Inches.	Mean Temperature—Degrees.	Relative Humidity—Per Cent.	Maximum Temperature—Degrees.	Minimum Temperature—Degrees.	Prevailing Direction of Wind.	Number of Clear Days.	Number of Partly Cloudy Days.	Number of Cloudy Days.	Average Cloudiness During the Month, Scale 0 to 10.	Number of Days on which 0.01 Inch or More of Precipitation Fell.	Total Amount of Precipitation—Inches.	Number of Days on which Min. Temp. Fell Below Freezing.
January	30.064	17.9	81	53	−15	NW	5	7	19	7.2	21	2.77	30
February	30.166	30.0	78	54	0	NW	4	10	14	7.1	15	6.16	26
March	30.065	40.2	68	75	12	S	9	6	16	6.4	11	2.69	17
April	29.942	52.0	69	81	30	SE	3	9	18	7.5	22	8.60	2
May	29.926	59.9	67	88	40	SW	7	14	10	6.1	11	3.15	0
June	29.984	72.8	63	98	54	SW	9	14	7	4.8	12	3.02	0
July	29.990	79.1	57	97	56	NW	9	17	5	4.7	6	0.83	0
August	29.994	73.4	55	95	47	NW	17	8	6	3.6	5	0.61	0
September	30.006	60.0	60	94	38	NW	15	7	8	4.6	12	3.03	0
October	30.071	55.7	71	84	26	NW	21	2	8	3.3	8	3.01	2
November	30.108	41.0	71	69	8	W	11	6	13	5.4	10	3.25	13
December	30.179	32.8	75	66	6	W	3	15	13	7.0	11	2.23	24
Annual means	30.041	52.0	68	79.1	25.2	NW	. . .	. . .	. . .	5.6	. . . .	. . .	. . .
Annual totals		. . .	. . .				113	115	137	. . .	144	39.35	114

TABLE II.

Daily and Monthly Mean Temperature at Indianapolis, Indiana, for 1893. *The Daily Means were made by Adding the Maximum and Minimum Temperature of Each Day Together and Dividing the Sum by Two. The Thermometers are* 76.4 *Feet Above Ground, and Exposed in a Standard Shelter of the Weather Bureau Pattern.*

DATE.	Jan.	Feb.	Mar.	Apr.	May.	June.	July	Aug.	Sept	Oct.	Nov.	Dec.
1	31	36	36	52	62	66	74	73	68	64	58	14
2	24	32	46	51	52	70	78	74	64	67	60	20
3	9	19	32	61	52	71	74	74	64	59	40	24
4	16	15	18	62	51	74	70	77	72	58	55	16
5	13	31	28	60	60	73	80	82	78	60	48	29
6	7	40	39	52	52	66	80	78	82	61	50	22
7	17	6	50	68	53	65	85	71	82	59	46	26
8	16	14	50	66	56	68	82	72	76	66	53	38
9	22	31	44	53	60	74	76	76	73	72	55	39
10	0	34	51	53	64	78	76	82	78	70	52	30
11	4	30	50	49	69	68	76	76	76	70	46	41
12	8	32	44	66	64	74	82	72	72	72	50	28
13	2	38	54	62	56	72	84	68	75	60	40	20
14	6	44	28	37	59	72	86	70	80	50	36	36
15	-6	28	23	39	63	71	84	75	81	46	26	52
16	4	33	23	46	45	72	78	78	64	48	40	28
17	8	30	30	50	50	75	78	76	64	50	48	22
18	20	24	32	51	55	78	76	76	76	54	32	28
19	7	32	34	52	61	81	74	68	80	57	34	23
20	11	18	44	42	76	78	76	68	66	57	35	27
21	23	26	46	38	72	76	75	70	75	49	40	35
22	28	28	48	37	75	72	77	72	76	54	36	50
23	25	34	59	38	52	70	82	78	64	61	22	53
24	26	36	46	42	58	72	84	78	57	54	16	56
25	25	30	35	47	66	76	84	76	54	46	24	50
26	30	38	30	56	62	72	81	76	51	53	32	30
27	32	46	36	52	62	74	72	76	56	50	39	36
28	46	34	37	54	58	72	79	73	56	38	40	46
29	38	. . .	38	62	62	74	82	64	52	38	46	31
30	32	. . .	54	58	68	76	82	64	56	37	36	32
31	32	. . .	60	. . .	64	. . .	82	67	. . .	46	. . .	31
1893.	17.9	30.0	40.2	52.0	59.9	72.8	79.1	73.4	69.0	55.7	41.0	32.7

TABLE III.

Daily and Monthly Precipitation at Indianapolis, Indiana, for 1893. *The Rain Gauge is* 72.3 *Feet Above Ground.*

DATE.	Jan.	Feb.	Mar.	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.09	.39	.00	.32	.54	.43	.19	.00	.00	.29	.00	.02
2	T	1.24	T	.00	.00	.00	.00	.00	.00	.46	.03	.07
3	T	.27	.08	.25	.00	.20	.00	.00	.00	1.56	.07	.27
4	.20	.00	T	.00	.00	.12	.00	.00	.00	T	.00	T
5	.01	.01	.00	.00	.04	.05	.00	.00	.00	.00	.00	.00
6	.00	.73	.00	.07	.00	.01	.00	.00	.00	.01	.00	.00
7	.17	.03	.00	T	.00	.00	.00	.00	.00	.00	.00	.00
8	.02	.00	.62	T	T	.00	.00	.00	.00	.00	.00	.00
9	.12	1.13	.38	.03	.56	.00	.00	.00	.00	.00	.00	.10
10	.00	.25	T	.46	.00	.14	.00	.00	.00	.00	.00	.00
11	.12	.00	.11	.51	.05	.01	.00	.16	.10	.00	.00	.00
12	.02	.00	.00	.44	.68	.00	.00	.15	.59	.00	.00	.00
13	.01	.00	.00	.34	T	.00	.00	.00	1.03	.17	.29	.00
14	.11	.83	.05	.99	T	.00	00	.00	.04	.06	.00	.38
15	.00	.03	T	.12	.06	T	.06	.00	.00	.00	T	.79
16	.01	.00	.00	.05	.00	.00	.12	.28	.04	.00	.00	.40
17	.02	.32	.07	.02	.00	.00	T	T	.00	.00	.02	.04
18	.22	.04	.00	.12	.00	.00	.00	.00	.00	.00	.15	T
19	.00	.00	.03	.57	.00	.00	.00	.00	.01	.00	.00	.00
20	.06	T	.05	.64	T	.90	T	.00	.04	.06	.00	.00
21	.18	.55	.13	.15	.36	1.02	.00	.00	T	.00	1.09	T
22	.00	.04	.67	T	T	.04	.00	.00	.05	.00	T	T
23	.01	T	T	T	.29	.00	.00	.00	.37	.00	T	.02
24	.02	T	.50	.01	.00	.00	.00	.00	.26	.00	.00	.00
25	.01	T	T	.93	.00	.08	.02	.01	.04	.00	.00	T
26	.00	.00	T	.65	.49	.00	.27	.01	.00	.40	.02	.00
27	.12	.00	.00	.02	T	.00	.00	.00	.00	T	1.47	.01
28	T	.03	.00	.00	.00	.00	.00	.00	.00	.00	.01	.13
29	.18	. . .	.00	.31	.00	.00	.17	.00	T	.00	.10	.00
30	T	. .	.00	1.60	.03	.02	.00	.00	.46	.00	.08	T
31	.07	. .	.00	. . .	.05	. .	.00	.00	. . .	.00	. . .	.00
MEAN.	2.77	6.16	2.69	8.60	3.15	3.02	0.83	0.61	3.03	3.01	3.25	2.23

"T" indicates traces of precipitation (less than 0.01 inch).

TABLE IV.

Highest and Lowest Temperature (in Degrees Fahrenheit) at Indianapolis, Indiana, During Each Month of the Period 1873–1893 *Inclusive. Weather Bureau Observations.*

MONTH.	1873.		1874.		1875.		1876.		1877.		1878.		1879.		1880.		1881.		1882.		1883.	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
January	60	-13	63	1	44	-18.5	69	9	58	-11	54	-2	57	-22	66	20	47	-6	61.5	7	45	-11
February	63	1	59	17	55	-8	66	-3	63	20	61	18	58	-1	65	14	59	1	65	15	72	4
March	61	2	72	20	77	9	72	11	73	9	72	23	74	15	70	21	62	18	70.5	24	69.4	12
April	81	32	71	27	79	19	77	29	80	28	80	35	82	21	88	27	78	20	80	24	85.3	30.4
May	86	47	89	40	88	34	86	33	88	31	81	35	87	36	85	40	86	44	80.5	37	82.8	35
June	94	62	96	50	91	51	91	51	89	45	91	50	91	47	91	54	92	48	94	45	89	50
July	91	60	97	58	92	63	93	61	90	54	96	58	96	58	93.5	55	101	57	89	53	92	56.8
August	95	51	95	56	87	51.5	89	48	89	57	92	53	93	53	94	51	101	55.5	90	52	91	53
September	87	42	90	41	90	35	88	42	85	42	88	44	80	38	89	41	94.5	48	85	42	87	40.4
October	76	25	78	28	75	28	75	26	83	35	81	23	86	30.5	78	31	81	39	79	35.5	81	35
November	59	13	71	-2	61	14	73	18	61	9	65	25	75	18.5	63	-5	63	10	72	22	65	10
December	62	12	61	12	68	-1	47	-15	67	20	48	-12	64	55	56	-13	63	14	57	-10	62	9

MONTH.	1884.		1885.		1886.		1887.		1888.		1889.		1890.		1891.		1892.		1893.	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest
January	56.8	-25	51.7	-11.3	55.3	-15	64.4	-11.8	59.8	-6	58	10	70	4	58	14	54	-5	53	-15
February	65.2	1.6	59	-6	54.5	-4.2	66.2	10.5	59.8	-2.1	64	-1	69	14	61	-2	61	11	54	0
March	69.5	5	63.8	3.2	75.9	15.6	69.6	15.8	69	8.8	71	22	64	8	65	8	69	9	75	12
April	80.5	31.4	78.3	27.8	84	24.5	85	22.4	83.3	30.9	80	23	78	29	84	25	82	27	81	30
May	84	40.6	87.7	35.3	87.1	39.1	89	49	86.2	36	90	35	87	39	86	36	87	41	88	40
June	92.8	54.7	90.1	41.1	89	46.9	90	49.4	96.4	45.3	89	41	97	50	94	54	94	56	93	54
July	90	55.2	94.5	47.5	94.8	50.9	100.8	58.6	94.8	57.5	92	57	97	52	94	52	97	50	97	56
August	89	50.2	95.1	47.7	92.2	53	99	49.2	97.5	48.9	91	51	96	46	94	50	94	52	95	47
September	90.3	44.8	83.8	38.4	90.2	43.3	93.1	34	87.9	33.7	90	39	87	40	93	48	88	42	94	38
October	87	31.2	77.8	31.4	82.3	31.7	82.4	22.3	78.4	32	80	29	84	33	85	31	85	28	84	26
November	66.8	12.3	69.8	23.7	71.6	16.5	73.5	3.8	76	25.7	67	12	68	27	65	7	62	14	69	8
December	60.7	12.3	56.3	-2.1	57.7	-3.5	57	3	56	17.4	68	24	52	12	61	20	63	-4	66	6

TABLE V.

Annual Means for the Years 1872 to 1893, Arranged for Comparative Purposes, as Compiled from the Records of the U. S. Weather Bureau, Department of Agriculture, at Indianapolis, Ind.

YEAR.	Mean Barometer Reduced to Sea Level—Inches.	Mean Temperature—Degrees.	Mean Relative Humidity—Per Cent.	Maximum Temperature During the Year—Degrees.	Minimum Temperature During the Year—Degrees.	Prevailing Direction of Wind.	Number of Clear Days.	Number of Fair Days.	Number of Cloudy Days.	Average Amount Cloudiness—Scale 0 to 10.	No. of Days on which 0.01 Inch or more of Precipitation fell.	Total Amount of Precipitation.	Greatest Precipitation in any Consecutive 24 Hours—Inches.	No. of Days on which the Maximum Temperature was below Freezing.	No. of Days on which the Minimum Temperature was below Freezing.	No. of Days on which the Temperature was above 90 Degrees.
1872	30.044	50.8	67.5	96.0	—11.0	SW	85	142	139	5.0	122	34.07	3.71	49	120	17
1873	30.004	52.0	69.2	95.0	—13.0	SW	97	141	127	5.0	145	52.32	2.73	38	99	9
1874	30.037	65.0	63.0	97.0	— 2.0	NW	97	150	118	5.0	120	43.60	2.61	17	83	27
1875	30.005	50.5	66.1	92.0	—18.5	W	81	138	146	5.0	155	54.58	2.86	44	107	5
1876	29.997	53.2	68.1	93.0	—15.0	W	83	126	157	6.0	155	57.53	2.70	30	101	9
1877	30.008	54.0	67.2	90.0	—11.0	SW	98	141	126	5.0	139	39.08	2.07	20	84	0
1878	29.946	55.4	64.6	96.0	—12.0	SE	84	159	122	6.0	148	38.62	2.03	17	68	13
1879	30.036	53.9	64.4	96.0	—22.0	S	94	135	136	5.0	122	42.88	2.33	27	98	12
1880	30.030	54.4	65.4	94.0	—13.0	W	106	145	115	5.0	123	50.99	2.00	26	19	9
1881	30.024	54.9	67.4	101.0	— 6.0	SW	100	140	125	5.0	112	48.74	4.30	28	91	31
1882	30.045	53.8	71.1	94.0	—10.0	NW	107	141	117	5.3	141	53.68	3.02	19	78	4
1883	30.059	51.8	66.2	92.0	—11.0	SW	96	157	111	5.4	164	54.12	3.71	35	106	6
1884	30.044	52.5	67.6	92.8	—25.0	S	99	144	123	5.6	159	39.99	2.16	40	91	5
1885	30.019	49.3	73.9	95.1	—11.3	SW	92	153	120	5.5	147	39.51	2.87	42	111	15
1886	30.039	51.0	71.3	94.8	—15.0	S	108	150	107	5.2	138	39.88	2.11	47	127	13
1887	30.044	52.7	66.0	100.0	—11.8	S	113	146	106	5.2	119	33.08	1.89	31	120	34
1888	30.082	50.6	68.8	97.5	— 6.0	NW	113	119	134	5.1	124	41.36	2.62	36	103	17
1889	30.062	53.1	69.3	92.0	— 1.0	SW	95	113	157	5.5	113	38.41	2.44	18	71	5
1890	30.066	54.0	68.6	96.9	4.4	SW	77	144	144	6.2	189	54.87	4.41	25	72	23
1891	30.066	53.5	69.0	94.0	— 3.0	Calm NW	113	108	114	5.7	145	38.23	2.86	25	80	25
1892	30.079	52.0	71.0	97.0	— 5.0	NW	95	128	143	5.9	150	39.77	2.73	41	104	16
1893	30.041	52.0	68.0	97.0	—15.0	NW	113	115	137	5.6	144	39.35	1.60	44	114	28

TABLE VI.

Monthly Mean Atmospheric Pressure Reduced to 32° Fahrenheit and the Level of the Sea for Each Year of the Period 1872 *to* 1893, *Inclusive, as Recorded at the Office of the U. S. Weather Bureau, at Indianapolis, Indiana.*

MONTH.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.
January .	30.130	30.056	30.120	30.232	30.107	30.160	30.022	30.151	30.026	30.136	30.159	30.162	30.188	30.156	30.053	30.031	30.250	30.056	30.211	30.084	30.146	30.064
February .	30.008	30.044	30.099	30.129	30.070	30.156	30.117	30.112	30.049	30.092	30.101	30.283	30.160	30 026	30.114	30.156	30.086	30.174	30.080	30.056	30.109	30.166
March . .	30.043	30.030	30.041	29.999	29.982	30.013	29.912	30.073	30.059	29.824	30.088	30.057	30.040	30.095	29.975	30.055	30.121	30.004	30.086	30.037	30.084	30 065
April . . .	29.960	29.896	30.016	29.064	29.978	29.898	29.746	29.969	29.946	29.963	30.027	29.965	29.918	30.014	30.029	30.099	30.154	30.018	30.096	30.022	30.090	29.942
May . . .	29.988	29.895	29.940	29.922	29.963	29 992	29.904	29.951	29.974	29.967	29.955	29.940	29.956	29.909	29.925	29.974	29.940	29.974	29.936	30.092	29.945	29.926
June . . .	29.976	29.905	29.925	29.918	29.881	29.907	29.896	29.954	29.947	29.906	29.907	29.931	30.009	30.013	29.951	29.992	29 954	30.012	29 990	29.934	29.950	29.984
July . .	29.964	29.982	29.954	29.935	29.957	29.931	29.912	29.627	29.957	29.995	30.012	30.012	29.918	29.964	29.963	29.975	30.047	29.988	30.015	30.028	30.078	29.990
August . .	30.032	30.013	29.952	29.945	30.001	29.926	29 876	29.951	29 976	30.005	29.981	30.050	30.034	29.946	29.982	29.994	30.041	30.098	30.063	30.000	30.022	29.994
September	29.997	30 632	30.020	30.020	29.954	29.997	30.050	30.081	30.033	30 017	30.067	30.043	30.052	30.025	30 084	30.076	30.082	30 054	30.105	30.150	30.118	30.006
October . .	30.095	30.062	30.093	29.999	29.972	29.983	30.028	30.108	30.062	30.130	30.034	30.090	30.153	29.973	30.198	30.086	30.014	30.133	29.974	30.149	30.108	30.071
November	30.112	30.010	30.116	30 037	29.990	30.038	30.010	30.078	30.207	30.163	30.177	30.161	30.131	30 001	30.051	30 094	30.155	30.102	30.111	30.110	30.133	30.108
December.	30.218	30.125	30.165	29.936	30.109	30.097	30.082	30.080	30.124	30.180	30.152	30 136	30.156	30.106	30.169	30.095	30.142	30.134	30.128	30.129	30.167	30.179

TABLE VII.

Mean Temperature and Total Monthly Precipitation for Each Month of the Period 1872 *to* 1893 *Inclusive. Compiled from the Records of the Weather Bureau at Indianapolis, Indiana.*

MONTHLY MEAN TEMPERATURE IN DEGREES, FAHRENHEIT.

MONTH.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892	1893.
January .	26.6	24.5	35.5	20.0	33.6	27.8	34.5	26.5	45.9	23.7	31.6	24.5	21.6	22.5	21.2	24.4	23.3	34.1	37.4	34.2	23.8	17.9
February .	29.6	30.3	35.6	21.2	37.0	39.2	39.0	30.1	38.7	29.8	42.3	32.0	34.7	20.5	28.2	34.6	30.5	27.0	38.8	34.6	36.4	30.0
March . .	35.0	37.9	41.6	37.4	37.5	35.5	49.9	42.5	41.6	36.8	44.8	36.1	41.1	33.0	39.4	38.2	35.7	44.4	36.0	35.5	37.4	40.2
April . . .	55.0	51.2	45.8	49.3	52.0	53.8	85.6	52.3	55.2	47.5	53.3	50.3	50.2	51.5	54.6	52.3	52.6	53.3	53.6	55.4	50.6	52.0
May. . . .	64.3	63.9	66.6	62.3	65.7	61.9	61.6	66.2	68.4	70.2	58.5	60.9	62.1	60.5	64.3	67.3	60.5	61.6	61.6	59.6	60.0	59.9
June . . .	73.0	76.7	76.2	70.8	71.9	71.5	69.9	71.4	73.3	72.8	71.6	71.5	73.2	68.8	69.2	73.8	72.9	67.8	76.8	74.0	74.6	72.8
July . . .	77.7	75.3	78.3	75.6	77.7	75.8	79.1	79.5	75.9	79.4	72.6	75.1	73.7	76.3	74.3	80.6	75.2	74.2	75.7	71.9	75.6	79.1
August . .	75.9	74.8	75.5	70.2	75.0	73.1	75.2	72.6	75.6	79.0	73.0	70.4	72.3	70.0	72.9	73.3	71.1	71.4	71.1	72.1	74.2	73.4
September	66.7	63.8	68.6	63.1	64.4	66.3	67.0	61.7	64.2	73.5	65.5	63.2	71.6	63.9	66.6	65.8	60.9	64.5	62.9	70.6	67.4	69.0
October. .	53.3	49.8	55.0	50.8	51.1	58.2	54.0	62.3	52.9	60.2	58.8	54.8	58.3	50.4	55.3	60.2	48.5	50.8	55.0	54.6	56.4	55.7
November	35.3	37.0	42.1	39.9	41.1	42.6	44.9	45.4	31.2	42.8	43.3	45.0	41.5	41.9	39.3	40.5	42.4	40.9	46.5	39.4	38.2	41.0
December	23.8	37.2	35.3	41.2	22.6	46.3	26.9	35.6	24.2	40.2	30.4	34.4	29.9	32.0	25.2	30.8	34.0	46.7	33.1	40.6	30.0	32.8

TOTAL MONTHLY PRECIPITATION, IN INCHES AND HUNDREDTHS.

January .	1.17	4.50	3.75	1.01	5.94	1.56	2.38	1.47	6.32	2.10	3.74	1.32	1.05	3.31	4.02	1.48	2.81	2.52	10.20	2.00	1.55	2.77
February .	1.41	2.85	4.17	1.88	4.49	1.21	2.10	2.17	3.16	6.43	7.28	7.19	4.73	1.54	1.51	4.61	2.45	1.29	5.28	5.97	3.53	6.16
March . .	1.31	3.90	5.79	5.23	7.44	5.23	1.23	3.36	4.03	4.01	6.11	3.25	3.01	0.82	2.85	2.78	4.26	2.15	4.46	5.77	1.93	2.69
April . . .	3.26	5.91	4.44	1.29	2.27	3.11	5.51	2.25	6.43	2.60	3.68	2.73	2.89	5.28	3.09	3.92	4.05	2.07	4.58	2.30	6.33	8.60
May. . .	3.22	3.89	4.03	5.13	5.11	2.09	3.24	3.38	8.22	3.78	7.65	4.02	4.80	3.66	3.82	2.39	4.73	5.76	3.61	1.61	8.83	3.15
June . . .	3.28	3.70	5.25	12.20	7.54	6.21	2.25	2.94	8.48	3.92	9.35	4.59	4.11	5.74	4.92	2.45	2.65	4.88	4.45	2.90	3.84	3.02
July . .	11.00	11.28	3.53	13.12	7.48	4.19	4.54	2.40	2.26	0.82	3.43	6.12	6.03	1.43	2.27	1.41	3.33	5.98	0.97	1.93	2.93	0.83
August	2.69	1.32	2.90	3.66	5.86	4.13	2.42	5.71	2.67	0.97	4.51	2.48	0.46	5.82	6.70	3.15	5.84	5.54	5.00	5.79	1.39	0.61
September	2.81	1.76	2.09	1.34	3.85	2.04	3.35	6.94	1.86	3.25	0.72	2.72	3.09	3.50	3.43	2.11	1.23	3.79	7.31	0.74	2.42	3.03
October. .	1.07	5.27	0.36	2.67	4.42	3.32	4.78	1.34	3.54	6.11	2.18	8.56	2.31	3.25	1.20	0.55	4.04	1.70	4.02	1.18	0.28	3.01
November	0.80	2.55	4.82	3.04	2.26	3.64	2.87	5.82	2.58	9.35	2.50	6.80	1.46	2.71	3.87	3.71	5.07	4.97	3.35	5.08	4.90	3.25
December	2.10	5.90	2.79	4.01	0.90	2.46	3.95	5.10	1.44	5.40	2.53	4.34	6.05	2.45	2.20	4.52	1.91	2.76	1.64	2.96	1.84	2.23

ANNUAL SUMMARY FOR THE YEAR 1893.

During the winter 1892–1893, the conditions of the weather had not been favorable to fall crops in general; during December, 1892, the ground was frozen hard, and no snow protected the crops; but during the month of January, 1893, when very low temperature prevailed, deep snow covered fields and meadows. During the continuance of freezing weather, at the beginning and during the middle of the month of February, snow had not fallen in sufficient quantities to offer protection to the wheat, and some of it was "winter killed," and the peach trees were hurt. The very favorable weather at the end of February and during the month of March, was very beneficial; plowing and seeding advanced rapidly, the soil being in good condition, and vegetation and farm work also had advanced much. At the beginning of April, fruit trees were in bloom in the southern portion of the State, and wheat, clover and grass looked green and fresh; but during the month of April the conditions of the weather were very unfavorable; cloudy weather and heavy rains prevailed, the greatest amounts of total precipitation in any month of April were recorded nearly everywhere; streams overflowed and inundated the fields in lowlands and frequent frosts occurred. No plowing and seeding could be done under these circumstances, and the crops did not advance; wheat in lowlands turned yellow, potatoes rotted in the ground, and the fruit trees were injured by the cold and wet. The weather during the month of May was more favorable; plowing advanced rapidly and much corn was planted in the highlands, the lowlands being still too wet, and those in the bottoms were still under water. At the end of May wheat was heading everywhere, early-planted corn had come up and some fields had been plowed once; in some localities all corn had been planted, while in others but little. The weather during the month of June was quite favorable to farm work and beneficial to vegetation. About the middle of the month wheat is ripening fast, and all other crops—oats, rye, potatoes, clover and grass—continued in most promising condition; corn came up and grew rapidly under good cultivation; cutworms were doing injury to it in some localities, and the Hessian fly and smut injured the wheat in some fields. At the end of June, wheat, clover and grass were being cut, yielding good crops, especially wheat and hay; corn is growing rapidly, it stands well and clean, the fields having been plowed several times; tobacco has a good start, a great acreage having been planted; berries were abundant, but tree fruit had nearly all fallen off because of the wet and cold in the spring. At the beginning of the month of July the weather was still favorable to growing crops, to harvesting and farm work; about the middle of the month the wheat harvest is ended and threshing had begun in the southern and central portions of the State, while the harvest just commenced in the northern; good crops were secured in very good conditions; very good and heavy crops of hay were secured in excellent condition without rain. Corn continued to grow rapidly, standing well in clean fields with good tillage; rye and oats were nearly ready for the sickle, except in the northern portion. Tobacco and potatoes were in good and advanced condition, promising good crops, but at the end of the month, it had been too dry for so long a time in many localities, that oats, corn and tobacco began to suffer, especially the two former, in the northern portion of the State. The wheat harvest was completed in most localities. The drouth continued during the month of August, except in the extreme southern portion, where a few good rains fell. Pasturage had become very dry and short, and in some localities farmers were compelled to feed the stock as in winter; late potatoes, already suffering from the drouth, were also injured by bugs. The melon crop promised to be unusually large, and grapes had not suffered yet from the drouth. At the end of the month, corn is almost beyond recovery in many fields, tobacco, tomatoes and all other crops needed rain very much, and the very good prospect offered in the earlier part of the season, lessened from day to day. Fall plowing and seeding were delayed, the ground being too dry and cloddy. The drouth continued until the middle of September; corn in many fields was ruined, and much had been cut for fodder, as pasturage was brown and withered, water was scarce in many localities, and the stock had to be driven long distances for water; leaves began to wither and fall, and forest fires were beyond control in the northern portion of the State; grasshoppers and crickets were numerous. Abundant rains fell during the latter part of the month everywhere, but they came too late to help corn; pasturage improved rapidly, and plenty of water accumulated in wells, cisterns, springs and creeks for the cattle; the soil became in good condition, and the long delayed fall plowing and seeding advanced most rapidly. At the end of September, most corn was in shock, and that which remained standing was beyond danger from heavy frosts; winter wheat had come up in some fields, and fall plowing and seeding was nearly completed in the southern and central portions, while in the northern portion but little plowing had been done; hulling of clover was nearly finished, with a very good yield of seed, and the tomatoes were still in good condition, uninjured by frosts. The general condition of the weather during the month of October was very fair and pleasant; rain fell only on few days, but those on the 2d and 3d, being very heavy, continued to put pasturage in fine condition, and live stock was doing very well. Corn was gathered during the month and wheat sowing was completed everywhere, and at the end of the month it had come up, and the plant is sturdy and in good condition to winter well. Exceedingly favorable weather continued during the month of November; at the end of the month the corn crop had been safely garnered and housed, and farm work was well advanced. Winter wheat is in best condition to stand severe winter weather, the plant is vigorous, deeply rooted and growing nicely; pasturage and stock are in best condition, and this continued during the month of December, for when exceedingly cold weather occurred on a few days, snow covered the fields.

The general result of the changeable weather conditions, the heavy rains during the spring and the drouth the latter part of the summer and the beginning of autumn, is that hay and clover yielded very good, heavy crops everywhere; wheat, rye and tobacco, good crops, less so oats and potatoes; the melon crop was good, especially in quality; the corn crop was very light, only a few fields in favored localities had nearly average crops; berries were abundant, but tree fruit an utter failure; grapes yielded a large and very good crop.

The winter of 1892-1893 had been cold, with the mean temperature 3.8 degrees below the normal; especially the month of January was very cold, as its mean temperature was 7.1 below normal. An average amount of precipitation was recorded.

The mean temperature of the spring was average, the means of March and April were excessive and that of May deficient. The precipitation was excessive 1.53 inch.

The summer was warm, its mean temperature was 1.3 degree in excess, and an excess is noted in every month, except in the month of June, when the mean was just normal. The precipitation was deficient 1.39 inch.

The autumn was also warm; its mean temperature, like that of the summer, was also 1.3 degree above the normal; an excess is noted in September and October and a slight deficiency in November. The precipitation was near normal, only 0.11 inch above.

The annual mean temperature in the year 1893 was normal. The highest annual means for any year, ranging from 49.0 to 55.4 degrees, were computed for most stations in the year 1890 at most stations; the lowest annual means, ranging from 44.8 to 55.1 degrees, were computed for most stations in the year 1885. The maximum temperatures, ranging from 97 to 107 degrees, were recorded at most stations in 1887, and the minimum temperatures ranging from -10 to -33 degrees in various years.

The average precipitation during the year was 1.40 inch in excess of the total annual amounts, ranging from 33.46 to 70.04 inches, and the departures from the normal amounts from -6.81 to -5.02 inches. The greatest annual amounts, ranging from 42.20 to 97.38 inches, were recorded nearly everywhere in the year 1890, and the least annual amounts, ranging from 27.38 to 44.29 inches, were measured in the year 1889 at most stations.

THE SEASON OF 1893.

The Year Begins with December, 1892, *the Beginning of Winter, and Ends November* 30, 1893, *the End of Autumn.*

MONTHS AND SEASONS.	TEMPERATURE. Degrees Fahrenheit.				PRECIPITATION. Inches.			NUMBER OF DAYS.			
	Mean.	Normal.	Departure from Normal.	Mean Range.	Total Am't of Precipitation.	Normal.	Departure from Normal.	Cloudless.	Partly Cloudy.	Cloudy.	When Precipitation.
December, 1892	30.4	32.9	−2.5	63	1.73	2.78	−1.05	5	7	19	8
January, 1893	18.3	25.4	−7.1	67	2.54	2.99	−0.45	6	8	17	12
February, 1893	29.9	31.8	−1.9	52	4.78	3.53	+1.25	5	9	14	10
Winter, 1893	26.2	30.0	−3.8	61	3.02	3.10	−0.08	16	24	50	30
March	40.2	37.2	+2.9	61	2.83	2.93	−0.10	8	11	12	9
April	52.4	52.2	+0.2	51	8.46	3.82	+4.74	4	10	16	17
May	60.0	61.4	−1.4	48	4.46	4.40	+0.06	9	12	10	10
Spring, 1893	50.9	50.3	+0.6	53	5.25	3.72	+1.53	21	33	38	36
June	71.9	71.9	0	41	3.45	4.25	−0.80	13	11	6	8
July	77.9	74.6	+3.3	39	1.83	3.13	−1.30	16	12	3	6
August	72.3	71.5	+0.8	46	1.02	3.08	−2.06	18	9	4	4
Summer, 1893 . . .	74.0	72.7	+1.3	42	2.10	3.49	−1.39	47	32	13	18
September	68.2	64.9	+3.3	57	3.31	3.13	+0.18	13	9	8	8
October	54.4	53.2	+1.2	59	3.53	2.55	+0.98	19	4	8	7
November	40.2	40.9	−0.7	58	2.99	3.82	−0.83	11	6	13	8
Autumn, 1893 . .	54.3	53.0	+1.3	58	3.28	3.17	+0.11	43	19	29	28
Year 1893.	51.3	51.5	−0.2	54	3.41	3.34	+0.07	127	108	130	107

SUMMARY FOR 1893.

WITH COMPARISONS FROM ALL AVAILABLE RECORDS.

The Annual Mean Temperature and Total Precipitation, and their Departure; the Highest and Lowest Mean Temperature and Total Amount of Precipitation; the Highest and Lowest Temperature and Date when it Occurred; Number of Days of Different Character During the Year. (*Stations of observation from which an uninterrupted record has been received considered only.*)

PLACE OF OBSERVATION.	TEMPERATURE (Degrees Fahrenheit).															
	Number of Years.	Normal.	Annual Mean 1893.	Departure from Normal	Highest Annual Mean.	Year.	Lowest Annual Mean.	Year.	Highest Temperature	Year.	Month.	Date.	Lowest Temperature	Year.	Month.	Date.	Mean Annual Range, 1893.
Mt. Vernon	6	55.4	54.7	−0.7	56.8	1888	54.4	1892	100	1887	July August	18 4	−10	1893	January	20	50
Princeton	10	53.9	54.9	+1.0	55.5	1887	51.2	1885	106	1888	August	1	−15	1886	January	11	52
Marengo	11	55.6	55.2	−0.4	58.5	1890	53.7	1885	105	1887	July	29	−18	1886	January	12	53
Vevay	28	55.2	54.4	−0.8	57.0	1882	51.7	1875	104	1881	August	1	−23	1884	January	5	53
Butlerville	8	53.3	52.8	−0.5	55.5	1887	52.3	1892	106	1887	July	18	−25	1886	January	21	56
Worthington	11	52.2	52.2	0	54.6	1887	48.4	1885	100	1887	July	17-18	−23	1884	January	5	55
Seymour	6	53.4	52.7	−0.7	56.2	1890	52.9	1889	98	1892	July	25	−15	1893	January	15	56
Columbus	10	51.9	52.4	+0.5	53.6	1890	50.0	1886	104	1887	July	18	−26	1884	January	5	48
Degonia Springs	11	55.1	55.0	−0.1	57.2	1890	52.8	1885	99	1887	July	30	−22	1884	January	5	49
Jeffersonville	5	56.3	55.4	−0.9	56.9	1890	55.1	1892	97	1892	July	24	− 8	1893	January	15	50
Connersville	11	51.1	51.1	0	52.9	1890	47.8	1885	100	1887	August	4	−22	1884	January	5	53
Indianapolis	22	52.9	52.0	−0.9	55.0	1887	49.3	1885	101	1881	July August	10 12	−25	1884	January	5	54
Mauzy	13	49.1	50.5	+1.4	57.9	1881	46.2	1884	101	1887	July	30	−26	1884	January	6	54
Logansport	9	51.4	50.1	−0.3	52.7	1887	48.8	1885	101	1887	July	17	−25	1885	January	12	54
Rockville	6	52.4	50.6	−1.8	53.9	1890	51.5	1892	102	1887	July	14	−19	1893	January	15	58
Farmland	11	50.4	50.1	−0.3	53.0	1890	46.3	1885	102	1887	July	20	−24	1885	January	12	52
Lafayette	14	50.1	50.0	−0.1	52.2	1881	46.9	1885	107	1881	August	12	−33	1885 1887	January	22 7	60
Delphi	8	48.8	48.4	−0.4	51.0	1887	48.8	1893	104	1887	July	17	−18	1893	January	17	58
Columbia City	8	49.0	47.5	−1.5	51.2	1890	47.5	1893	97	1887	July	13	−22	1887	January	7	52
Angola	9	49.9	48.7	−1.2	52.1	1890	44.8	1885	103	1890	July	12	−25	1885	February	13	55
Northern Portion	10	49.4	49.4	−0.3	50.5	1887 1890	46.5	1885	107	1881	August	12	−33	1887	January	22 7	55
Central Portion	10	51.1	51.4	+0.3	53.6	1830	46.2	1888	105	1888	July	21	−24	1885 1886	January	22 12	53
Southern Portion	10	53.9	54.2	+0.3	55.6	1886	51.6	1885	106	1887	July August	18 1	−25	1886	January	11 22	52.1
State	11	51.5	51.6	+0.1	55.1	1886	48.3	1885	107	1881	August	12	−33	1888	January	7	53

SUMMARY FOR 1893—Continued.

PLACE OF OBSERVATION.	Precipitation (Inches).								Number of Days.			
	Number of Years.	Normal.	Total Amount 1893.	Departure from Normal.	Greatest Annual Am't.	Year.	Least Annual Amount.	Year.	Cloudless.	Partly Cloudy.	Cloudy.	On Which Precipitation
Mt. Vernon	6	45.35	44.65	−0.70	57.15	1890	37.83	1892	124	144	97	107
Princeton	10	39.68	39.16	−0.52	56.96	1890	27.55	1887	220	79	66	75
Marengo	11	65.40	70.04	+4.64	97.38	1890	44.29	1886	144	98	123	88
Vevay	28	44.49	45.08	+0.59	60.33	1883	33.31	1887	167	82	116	95
Butlerville	8	45 53	46.77	+1.24	52.69	1890	40.83	1889	166	99	100	124
Worthington	11	43.42	45.52	+1.11	54.78	1883	35.55	1887	124	136	105	108
Seymour	6	44.36	47.52	+3.16	49.88	1890	35.10	1889	103	150	112	117
Columbus	10	39.35	38 84	−0.51	46.07	1890	32.74	1887	160	68	137	94
Degonia Springs	11	44.65	41.31	−3.34	58.90	1890	35.46	1886	100	191	74	80
Jeffersonville	5	45.52	44.32	−1.20	58.33	1890	37.30	1892	132	141	92	108
Connersville	11	40.90	43.87	+2.97	50.99	1890	32.69	1889	109	163	93	108
Indianapolis	22	44.16	39.35	−6.81	57.53	1876	34.07	1872	113	115	137	144
Mauzy	13	43.16	46.98	+3.82	57.31	1888	34.56	1885	109	109	147	118
Logansport	9	38.91	32.04	−6.87	43.62	1885	29.05	1891	91	108	166	103
Rockville	6	39.11	41.40	+2.29	43.58	1890	33 08	1891	...	...	...	113
Farmland	11	40.10	45.12	+5.02	51.21	1890	29.84	1889	...	...	...	117
Lafayette	14	39.20	36.45	−2.75	47.21	1882	27.38	1887	128	128	109	108
Delphi	8	38.18	34.62	−3.56	49.98	1890	33.76	1887	85	130	150	105
Columbia City	8	36.83	33.46	−3.37	42.34	1890	30 70	1888	90	156	119	102
Angola	9	37.74	38.61	+0.87	42.20	1890	31.68	1889	117	68	180	120
Northern Portion	10	36.90	35.25	−1.65	43.77	1892	31.77	1889	106	130	119	102
Central Portion	10	39 81	42.22	+2.41	47.05	1890	35.29	1889	137	99	129	106
Southern Portion	10	45.08	46.86	+1.78	60.10	1890	38.57	1886	148	104	113	106
State	11	40.15	41.55	+1.40	50.86	1893	34.02	1887	129	111	125	107

C. F. R. WAPPENHANS,
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H. A. HUSTON,
Director Indiana Weather Service.

COMMERCIAL FERTILIZERS.

H A. HUSTON, STATE CHEMIST.

The estimated sales of commercial fertilizers in Indiana during the year 1893 amount to 38,000 tons, an increase over the sales in 1892 of 3,000 tons. This 38,000 tons of fertilizer consisted of 14,000 tons of bone, raw and steamed; 18,000 tons of "complete" fertilizer, that is fertilizer containing nitrogen, phosphoric acid and potash; 4,000 tons of ammoniated phosphates, 1,000 tons of phosphate and potash, and 1,000 tons of plain superphosphate. The aggregate selling price would amount to over $1,000,000.

A change is taking place in the character of the fertilizers sold in the State. This change consists of a relative *increase* in the amount of *phosphoric acid* contained in the fertilizers, and a relative *decrease* of *nitrogen* and a relative *decrease* of *potash*. The total quantity of phosphoric acid contained in the fertilizers sold in the State in 1893 was 12,900,000 pounds, the total quantity of ammonia was 2,300,000 pounds, and the total quantity of potash 770,000 pounds. If we compare these quantities with the quantities sold in 1889 we find there has been a relative increase in the amount of phosphoric acid of 10 per cent., a relative decrease in the amount of ammonia of 3 per cent., and a relative decrease of potash of 9 per cent. During the same period there was a relative increase in the amount of raw and steamed bone sold amounting to 16 per cent. The total amount of fertilizer sold in 1893 was double that sold in 1889. Not only has the relative proportion of nitrogen phosphoric acid and potash changed, but there have appeared in this time certain lines of goods that were formerly practically unknown in the State. Five years ago a plain superphosphate, that is a fertilizer containing no nitrogen or potash, but 12 to 16 per cent. of available phosphoric acid could hardly be found in the State, and the same was true of mixtures of superphosphates and potash salts. During the past year the sales of both plain superphosphates and superphosphates and potash reach considerable proportion. Moreover some of the complete fertilizers and the ammoniated phosphates contain so little ammonia and potash that although it was necessary to include them under other heads in classification, they really amounted to little else than superphosphates.

Another material that appeared on our market was finely ground basic slag, a material containing from 18 to 20 per cent. phosphoric acid. It is extensively used in Europe and is held in high enough esteem there to have become subject to adulteration. The manufacturer has, however, withdrawn it from sale in this State, claiming that the rating given it, $18.00 per ton, was such that he could not sell it here profitably. A ton of this material would contain from 375 to 400 pounds of phosphoric acid. The same amount of phosphoric acid can be purchased in our markets in the form of steamed bone for $18.00, and would carry with it nitrogen valued at over $5. So that the rating given would seem to be a fair one when the amount and availability of plant food is taken into consideration. In the past our analysis and ratings have been the means of driving some worthless so called fertilizers from the State. In this case it seems that the foreign demand makes it more profitable to sell the material abroad than to compete with the phosphoric acid contained in bone sold at our current prices.

Another comparatively new material is Florida soft rock. This material varies very widely in composition, but its value depends on the amount of phosphoric acid contained in it. While the total quantity contained in a ton may be considerable higher than that contained in a ton of bone, it contains no nitrogen and the availability of the phosphoric acid in the soft rock is doubtless below that in bone. While many experiments have been tried with hard rock on various field crops, the soft rock has so recently come on the market that comparatively little has been accomplished in testing it in the field, although laboratory experiments indicate that its phosphoric acid is somewhat more available than that in hard rock. It is probable that the material could be best utilized in connection with turning under a clover crop, as the products of the decomposition of the clover would tend to render the phosphoric acid in the rock more quickly available. At the same time the clover would supply the nitrogen which is wanting in the rock. Florida rock varies very much in composition. There is a good market for all the rock of high grade that is capable of being made into superphosphate. The kind that is likely to be offered for sale in a raw state is low grade rock, or else rock that contains so much iron and alumina that it can not be used for the manufacture of superphosphate. On account of the cheapness of the material it may be well to see if it can replace the phosphoric acid from other sources. But it should be remembered that while other phosphates are largely available to the plant the first season, untreated rock must become available much more slowly, and the return from its use must be looked for in several following crops. On account of the great range in the quality of the rock it will be well to buy only such as has been inspected and tagged as required by our law. The method of stating the analysis of rock phosphate might mislead some who are not familiar with the southern practice. Instead of stating the per cent. of phosphoric acid present, as is done on the official tag in this State, the southern practice is to calculate the total phosphoric acid present to the form of tribasic phosphate of lime and then report this as "bone phosphate." Thus, suppose a sample of rock was found to contain 18.3 per cent. of phosphoric acid, it would be reported and sold as containing 40 per cent. of "bone phosphate," although there would not be present a trace of bone phosphate in the sense in which the word is employed by consumers of fertilizers in this State.

Information is not at hand to determine the cause of the change in the relative quantities of nitrogen, phosphoric acid, and potash used in the State. Since the phosphoric acid is the cheapest it may be that its use has increased on that account. It is to be hoped that the explanation is rather the more reasonable one, that, as most of the fertilizer is used on clay wheat lands, this change is due to the tendency to utilize the clover crop for the nitrogen supply. Such lands are generally more benefited by phosphates than other lands, and as they contain relatively large amounts of potash they are hardly to be considered in need of potash manures for the wheat crop, provided the land is so drained and cultivated as to permit the potash already in the soil to become available. On the other hand limestone lands generally give good returns for the use of potash.

AMOUNT OF PLANT FOOD REMOVED IN CROPS.

Taking the average yields for the State for ten years, we find in round numbers—

Corn	100,000,000	bushels.
Wheat	40.000,000	"
Oats	20,000,000	"
Timothy	1,750,000	tons.
Clover	1,750,000	"

Using the average composition of these crops we find that there are removed annually in the grain of these three crops—

Phosphoric acid	30,158	tons, valued at	$4,825,280
Potash	17,720	" "	2,126,400
Nitrogen	76,736	" "	33,543,720
			$40,495,400
The corn stalks and straw produced with these crops contain nitrogen, phosphoric acid and potash valued at			28,231,300
Making a total valuation of fertilizing ingredients removed of			$68,726,700
The timothy hay crop removes fertilizing ingredients valued at			16,625,000
The clover crop contains fertilizing ingredients valued at			19,250,000
Making a total contained in the five principal crops of			$104,603,700

With the exception of a part of the nitrogen in the clover crop all this material is removed from Indiana soils yearly by the five principal crops.

The valuations used in computing the above sums are those used in computing the relative commercial values of fertilizers. The objection may be made that the fertilizing ingredients in these crops are not in such form as to carry this valuation. But we are not considering these crops in the light of quick acting fertilizers, but rather in the light of consumers of the most available fertilizer constituents in the soil, and these fertilizer constituents distributed in the soil ready for the crops are certainly as valuable as the same amounts of fertilizer constituents piled up in a warehouse. They were available when the crops took them and hence they were entitled to be valued as such.

Such an enormous drain upon our soils can not continue without some return being made. A part of this return is made in the form of commercial fertilizers. Thus, during 1893, there was applied to Indiana soils, even considering all the phosphoric acid available—

6,456	tons of phosphoric acid valued at	$1,032,960
1,174	" ammonia valued at	422,640
384	" potash valued at	46,080
Total	. . . .	$1,501,680

This is less than one and one-half per cent. of the value of fertilizer ingredients removed by the five leading crops. The clover crop can concentrate considerable, and at least a part of the nitrogen from this crop may be considered as a direct gain, since the plant can derive it from the free nitrogen of the air. But if the whole clover crop of the State were to be used for green manuring it could contribute but a small fraction of the material annually removed.

There are no means of finding out the total amount of barnyard manure produced in the State. But this is a most important source of supply of plant food, and any one who is familiar with the ordinary farm practice in the State must feel that there is much unnecessary waste of valuable material caused by improper care of coarse manure, and frequently by a failure to utilize it at all.

Another enormous loss occurs because of the failure to utilize the immense quantities of corn stalks and straw produced. They take from the soil over $28,000,000 annually, and they ought to be so handled as to return as large a fraction of this amount as possible. This can not be accomplished by burning them on the land, for in burning the most valuable ingredient, the nitrogen, is totally lost. If there are not enough cattle on the farm to convert them into manure after use as feed and bedding, some plan ought to be devised to get them under ground. A cutter, similar to that used in cutting ensilage, would put them into better condition either for feeding or for plowing under. Such a cutter introduced between two straw carriers would reduce the straw at the time of threshing at very little extra expense.

RETURNS FROM THE USE OF COMMERCIAL FERTILIZERS.

Many farmers have experimented with commercial fertilizers, but in most cases these experiments have consisted of a comparison of different brands. Yet among these results we sometimes meet with cases that appear to have given results that can be used in calculating the relation between the plant food supplied in the fertilizer and that removed in the increase of crop.

Thus one case shows that the application of 100 pounds of ground bone to an acre of ground produced an increase of 15 bushels of wheat per acre. If we examine into the amount of fertilizer ingredients supplied by the bone and the amount removed by the increase of the crop we shall find that—

The bone supplied	23.4	pounds of	phosphoric acid.
" "	3.6	"	nitrogen.
The 15 bushels of wheat, grain and straw, removed	12.3	"	phosphoric acid.
" " " " " "	27.2	"	nitrogen.
" " " " " "	17.3	"	potash.

Here we see that the bone supplied nearly twice as much phosphoric acid as was required by the increased crop, but only one-eighth of the nitrogen and no potash at all.

In another case a gain of 25 bushels of corn per acre is reported from the use of 100 pounds of a complete fertilizer:

The fertilizer supplied	10.5	pounds of	phosphoric acid.
" "	2.5	"	nitrogen.
" "	2.3	"	potash.
The 25 bushels of corn, ears and stalks, contained	15.5	"	phosphoric acid.
" " " " " "	48.6	"	nitrogen.
" " " " " "	27.2	"	potash.

This work appears to have been done on clay lands, similar to those on which most of the commercial fertilizer is used in this State. The results are probably exceptionally good. Yet the continued use of fertilizers on such land indicate that the farmers find it profitable. On the other hand, numerous experiments have been made on lands of different character which have resulted in small gains in the crop but not large enough gains to pay for the cost of the fertilizer and the labor of applying it.

In the two examples cited above the use of the fertilizer resulted in a very profitable return. But if we study the relation between the income and the outgo of plant food in these cases it is at once evident that the fertilization was very one-sided. While the supply of phosphoric acid may be fairly maintained, and clay land may contain potash that gradually becomes available, there still remains a very serious drain on the nitrogen of the land. And it is here that the utilization of the clover crop, barnyard manure, and other waste material, such as straw and stalks, promises to restore the balance. For all such coarse manures are characterized by containing more nitrogen and potash than phosphoric acid. Beside this these coarse manures have a most beneficial effect in improving the texture of heavy soils, and the effect of a heavy dressing of coarse manure extends over a long series of years.

The prudent farmer will not be content with a system which is simply profitable at present. In view of the increasing competition and low prices of agricultural products it becomes more necessary than ever to reach a method of farming that will give not simply a profit but the greatest net profit consistent with maintaining the productiveness of the soil.

INSPECTION OF SAMPLES FROM THE MARKET.

Although the work which we are required to do under the present fertilizer law is so heavy that it occupies nearly all our available time we are always willing to assist farmers who desire to know whether the fertilizers they buy are up to the required standard. This standard is the analysis printed on the tag, and not the guarantee of the maker, which may be printed on the sack. If there is not a tag on the sack the goods can not be legally sold, and it is a misdemeanor under our laws to offer them for sale. Such cases should be at once reported to the county prosecutor and not to this office.

I must again insist that the greatest care should be used in drawing a sample of a fertilizer in case the sample is for use in an inspection analysis. To avoid all dispute as to the fairness of the sample it is best to have the sample drawn in the presence of the dealer or agent, and have him sign a statement that he is satisfied that the sample fairly represents the stock of fertilizer in question. If the sampling is not correctly done all subsequent work on the sample is worse than worthless. It is wrong and unjust to all parties concerned.

Lest I may be considered unnecessarily exacting in this matter a case is here given by way of illustration. A request for an examination of a sample of suspected fertilizer was received and full directions sent for securing a fair sample. The results of the analysis showed the goods to contain—

Total phosphoric acid	11.53 per cent.
" ammonia	1.07 "
" potash	1.14 "

As each of these ingredients was far below the required standard there was trouble at once. The agent claimed that the sample did not fairly represent the goods. At the request of the purchaser another sample drawn in accordance with the directions and in the presence of the dealer was examined and found to contain—

Total phosphoric acid	14.23 per cent.
Ammonia.	1.12 "
Potash	0.83 "

The marked difference between the two samples is at once evident, and on investigation it was found that the first sample was drawn from a sack containing only a small part of the fertilizer that had originally been present in the sack, and that this part had been subject to handling that had caused the material to become so sorted out that the sample could not fairly represent the goods.

It is very difficult to convince purchasers of the absolute necessity for fair and good sized samples, and even more difficult to find a purchaser who is willing to aid in enforcement of the law, even after the most flagrant violations of it have been proven. We are willing to do our part on condition that the purchaser, for whose benefit the work is done, will do his, and only on such condition can we be expected to undertake inspection work.

EXPLANATION OF THE TABLE.

In the table the attempt is made to give the names and composition of every fertilizer on sale in the State at the date of printing this report. Letters were sent to every manufacturer doing business in the State, asking them to furnish us with the list of brands that they would offer for sale here during the coming year. If any omissions are found in the table it is because the manufacturers' replies to these letters have not be received.

The tables contain an "*estimated value per ton.*" It is important to note what it is intended by this. No attempt is made to state the *agricultural* value of the fertilizer or the return which a farmer may expect from a given quantity of any brand. This agricultural value would depend on many varying conditions, such as the crop to be raised, the composition and condition of the soil, the time and manner of applying the fertilizer, the amount of rainfall and sunshine, the temperature of the season, the drainage and other conditions.

The "estimated value per ton" is intended to mean the *commercial* value, that is, the sum for which a ton of the sample could be made and put upon the market. The figures are only approximate, and are probably rather above the selling price of the goods. In computing these valuations, the following values were given to the various ingredients:

Soluble phosphoric acid	8c per pound.
Reverted " "	8c "
Insoluble " "	3c "
Ammonia " "	18c "
Potassium oxide	6c "

These valuations are useful to the farmer in deciding between different samples of goods offered to him.

In order to find the estimated value per ton the following simple rules may be observed:

Multiply $1.60 by the per cent. of soluble phosphoric acid.
" 1.60 " " reverted " "
" .60 " " insoluble " "
" 3.60 " " ammonia.
" 1.20 " " potash.

Add together the numbers so attained and the sum is the estimated commercial value of a ton of the goods. For example, the tag shows that the fertilizers contain—

Soluble phosphoric acid	2.70 per cent.
Reverted " "	5.27 "
Insoluble " "	2.66 "
Ammonia	3.76 "
Potash	2.45 "

$1.60 x 2.70	$4 32
1.60 x 5.37	8.59
.60 x 2.66	1.60
3.60 x 3.76	13.53
1.20 x 2.46	2.95
Estimated value per ton.	$30.99

TABLE OF FERTILIZERS LEGALLY ON SALE IN INDIANA, MAY, 1894.

Number.	NAME OF FERTILIZERS.	MANUFACTURERS.	Per Cent Soluble Phosphoric Acid.	Per Cent. Reverted Phosphoric Acid.	Per Cent. Insoluble Phosphoric Acid.	Per Cent. Total Phosphoric Acid.	Per Cent. of Ammonia.	Per Cent. of Potash.	Estimated Value per Ton.	Number.
116	Bone Dust	Jacob Hock, Cannelton, Ind.	0.00	3.76	12.42	16.18	3.83	0.00	$27.25	116
228	Pure Raw Bone Meal	Cincinnati, Ohio, Desiccating Co	0.00	6.68	17.05	23.73	5.52	0.00	40.79	228
230	Pure Acidulated Bone	" " " "	2.51	10.20	7.55	20.26	5.18	0.00	43.51	230
242	Pure Pig Foot Bone	E. Rauh & Sons, Indianapolis, Ind.	0.00	9.73	17.16	26.89	3.55	0.00	38.61	242
275	Farmers' Favorite Phosphate	" " "	0.61	8.46	5.09	14.16	3.75	1.11	32.39	275
282	Tobacco Fertilizer	Cincinnati, Ohio, Desiccating Co	4.53	5.68	2.25	12.46	4.72	6.08	41.97	282
329	½ Raw Bone, ½ Bone Phosphate	E. Rauh & Sons, Indianapolis, Ind	1.83	6.07	15.72	23.62	3.47	0.36	34.99	329
342	Bowker's Bone and Potash, Sq. Brand	Bowker Fertilizer Co., Boston, Mass	7.97	2.38	2.78	13.13	2.14	1.94	28.26	312
431	Tobacco and Vegetable Superphosphate	Springfield, Ohio, Fertilizer Co	4.25	1.95	0.63	6.83	5.24	7.89	38.43-	431
463	Zell's Calvert Guano	Zell Guano Co., Baltimore, Md	9.19	2.01	1.42	12.62	1.00	1.43	25.09	463
464	Zell's Electric Phosphate	" " " " "	9.08	2.26	2.06	13.80	0.06	2.32	22.37	464
465	Zell's Dissolved Bone Phosphate	" " " " "	13.27	2.01	0.00	15.28	0.06	0.00	21.66	465
470	Fine Ground Bone	Cincinnati, O., Desiccating Co	0.09	4.76	16.40	21.16	4.58	0.00	33.94	470
471	Ohio Valley Phosphate	" " "	2.05	6.23	4.85	13.13	2.07	2.28	26.32	471
472	Gilead Phosphate	" " "	1.93	5.95	4.94	12.82	3.88	2.10	31.94	472
476	Pure Ground Bone	E. Rauh & Son, Indianapolis, Ind	0.00	13.00	11.44	24.44	2.98	0.00	38.38	476
493	Ammoniated Bone	" " "	0.00	7.27	5.83	13.10	10.00	0.19	51.36	492
494	Fine Raw Bone	Wm. Smith, Jr., Columbus, Ind.	0.00	8.37	14.76	23.13	4.72	0.00	39.24	494
495	Soft Bone	" " "	0.00	11.90	9.59	21.49	4.95	0.00	42.61	495
572	Hoosier Bone	F. M. Stevens & Co., Columbus, Ind	0.42	5.70	10.26	16.38	7.48	0.00	42.89	572
574	Pure Ground Bone	The Farmer's Prot. Fer. Co., Indianapolis	0.00	6.75	19.78	26.53	3.47	0.00	35.16	574
575	Old Honesty Bone Phosphate	" " " " " "	0.00	4.39	6.27	10.66	7.13	0.00	36.41	575
576	Home-Made Fertilizer	" " " " " "	0.00	3.95	6.50	10.45	5.19	0.00	28.90	576
577	XXX Phosphate	Cleveland Dryer Co., Cleveland, Ohio.	8.70	5.02	3.74	17.46	0.00	0.00	23.19	577
578	Ohio Seed Maker	" " " " "	6.15	3.24	4.17	13.56	2.04	0.00	24.95	578
579	Ammoniated Dissolved Bone	" " " " "	6.12	3.74	4.34	14.20	2.10	0.00	25.95	579
580	Hoosier Phosphate	" " " " "	8.01	5.49	3.40	16.90	3.40	0.46	36.41	580
581	Square Bone	" " " " "	5.33	6.28	9.65	21.24	3.03	0.00	35.24	581
582	Superior Bone	" " " " "	0.00	5.79	17.24	23.03	5.21	0.00	38.36	582

583	Our Boss	R. Rauh & Sons, Indianapolis, Ind	2.44	4.88	8.70	16.02	3.56	1.55	31.61	583
588	Peerless Bone	" " " "	0.42	5 70	10.26	16.38	7.48	0.00	42.89	588
592	Huntington's Crop Grower	The Huntington Seed Co., Indianapolis.	0.00	5.08	4.98	10.06	5.80	2.26	36 69	592
608	Bowker's Wheat Grower.	Bowker Fertilizer Co., Boston, Mass	6.73	4.09	2.84	13.66	0.10	1.26	20.88	608
614	Urbana Ammoniated Dissolved Bone	Loudenback Fertilizer Co., Urbana, Ohio.	7.29	3.91	1.00	12.20	3.15	3.70	34.30	614
629	Dissolved Bone.	Armour & Co., Chicago, Ill	0.65	9.51	6 98	17.14	2.98	0.00	31.17	629
630	Bone and Blood	" " " "	0.00	5.15	8.72	13.87	7.86	0.24	42.05	630
631	Bone Meal	" " " "	0.00	7.46	18.11	25.51	4.25	0.00	37.91	631
632	Bradley's Potato Fertilizer	Bradley's Fertilizer Co., Boston, Mass	4.98	4.47	4.30	13.75	2.83	4.20	32.93	632
633	Bradley's Niagara Phosphate	" " " " "	4.72	3.15	2.75	10.62	1.77	1.32	22.19	633
634	Bradley's Dissolved Bone with Potash	" " " " "	4.98	3.93	2.55	11.46	1.75	2.05	24.55	634
635	Dissolved Bone, Justice Brand	" " " " "	6.18	6.98	3.93	17.09	0.00	0.00	23.41	635
652	Madison City Raw Bone Meal	Madison Fer. & Glue Works, Madison, Ind.	0 00	9.70	12.87	22.57	4.85	0 00	40.70	652
653	Pig Foot Bone	Southern Indiana Fer. Co., Boonville, Ind	0.00	16.10	13.71	29.81	2.41	0.00	42.66	653
654	Premium Raw Bone Meal	" " " " " " "	0.00	8.57	17.68	26.25	5.02	0.00	42.39	654
660	B. D. Sea Fowl Guano	Bradley Fertilizer Co., Boston, Mass	5.16	5.28	3.02	13.46	3.24	3.42	34.28	660
662	Steven's Corn and Wheat Grower	F. M. Stevens & Co., Columbus, Ind	1.18	8 31	4.22	13.71	3.07	1.71	30.81	662
663	Slaughter House Bone	Nolte & Dolch Fertilizer Co., St. Louis	0.31	11.82	6.70	18.83	5.73	0 24	44.34	663
664	Pure Raw Bone Meal	" " " " " "	0.00	8.88	14.30	23.18	4.48	0.00	38.91	664
665	Crop Multiplier	" " " " "	4.70	8.26	2.47	15.43	3.44	1.96	36.95	665
666	Pure Animal Bone Superphosphate	" " " " "	2.49	9.07	3.25	14.81	2.27	1.12	29.98	666
667	Blood and Bone	Jos. S. Wilson, New Albany, Ind	0.00	8.88	9.31	18 19	6.39	0.29	43.14	667
669	Pure Ground Raw Bone	" " " " "	0.00	13.20	13.46	26.66	3.77	0 00	42.77	669
670	Packing House Bone Meal	" " " " "	0 00	11.87	14.25	26.12	3.89	0.00	41.54	770
691	Economizer Phosphate	Zell Guano Co., Baltimore, Md	7.18	3.93	2.17	13.28	1.14	1.42	24.88	691
706	Bone Meal	Akin Fertilizer Co., Evansville, Ind	0.00	11.33	3.04	14.37	6.28	.49	43.14	706
711	Nitrate of Soda	Michigan Carbon Works, Detroit, Mich					19.25		69.30	711
717	Phœnix Phosphate	Cincinnati, O., Desiccating Co	3.74	5.14	1 56	10.44	3.02	1.02	27.24	717
719	Lister's U. S. Phosphate	Lister's Agr. Chem. Works, Newark, N. J.	8.62	2.65	1.29	12.56	2.44	3.36	31.62	719
721	Urbana Sweepstake Phosphate	Loudenback Fertilizer Co., Urbana, O	5.01	4.11	1.14	10.29	2.35	2.40	26.66	721
722	Bowker's Ammon. Dissolved Bone Phos.	Bowker Fertilizer Co., Boston, Mass	6.91	3.50	1.36	11.77	2.05	1.67	23.86	722
723	Raw Bone	E. Raugh & Sons, Indianapolis, Ind		8.32	16.09	24.41	4.34	. .	38.59	723
724	Golden Harvest Raw Bone Meal	Southern Ind. Fert. Co., Booneville, Ind	0.00	5.79	17.90	23.69	5.36		39.30	724
727	Anchor Brand Complete Fertilizer	A. B. Mayer Mfg. Co., St. Louis, Mo	.14	4.16	6.37	10.67	5.05	2 65	32 06	727
728	Anchor Brand Bone Meal	" " " " "	0.00	11.09	11.48	22.57	4 98	.23	42.84	728
733	Excellenza Soluble Guano	John S. Reese & Co., Baltimore, Md	4.30	6.42	.92	11.64	2.75	1.33	29.20	733
734	Crown Bone and Potash	" " " " "	6.51	5.63	.37	12.51	0 00	3.84	24.25	734
743	Globe Wheat Fertilizer	Robert B. Brown, Oil Co., St. Louis, Mo	2.76	2.22	.42	5.40	5.07	3.69	30.90	743
744	Dissolved Bone and Potash	E. Raugh & Sons, Indianapolis, Ind	8.00	2.38	2.67	13.05	2.24	1.78	28.51	744

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723. The manufacturer states that this brand will also be offered for sale by McCurry, Allen & Co., Scottsburg.

TABLE OF FERTILIZERS LEGALLY ON SALE IN INDIANA, MAY, 1894—Con.

Number.	NAME OF FERTILIZERS.	MANUFACTURERS.	Per Cent. Soluble Phosphoric Acid.	Per Cent. Reverted Phosphoric Acid.	Per Cent. Insoluble Phosphoric Acid.	Per Cent. Total Phosphoric Acid.	Per Cent. of Ammonia.	Per Cent. of Potash.	Estimated Value per Ton.	Number.
746	Bradley's Triangle Bone and Potash	Bradley Fertilizer Co., Boston, Mass	2.02	4.51	7.95	14.48	2.05	1.83	$24.79	746
753	Challange Crop Grower	John S. Reese & Co., Baltimore, Md	5.19	6.20	1.15	12.54	1.20	1.51	25.15	753
754	Elm Bone Phosphate	" " " " "	11.19	3.58	.36	15.13	0.00	0.00	23.85	754
755	Half and Half	" " " " "	8.66	3.94	.88	13 48	1.29	.78	26.27	755
757	Buckeye Superphosphate	Cleveland Dryer Co., Cleveland, Ohio	6.24	6.45	3.61	16.30	3.15	.02	33.81	757
760	Valley City Wheat Grower	Madison Fert & Glue Works, Madison, Ind.	1.91	4.94	5.82	12.67	4.92	.78	33.10	760
771	Special Home-Made	The Huntington Seed Co., Indianapolis, Ind	8.00	2.38	2 67	13.05	2.24	1.78	28.41	771
774	Urbana Acid Phosphate	The Loudenback Fertilizer Co., Urbana, O.	6.14	9.05	.55	15.74	89	0.00	27.84	774
784	Increscent Brand St. Louis Fertilizer	P. B. Mathiason & Co., St. Louis, Mo	2 06	5.40	6.29	13.75	2.66	1.70	27.33	784
785	Increscent Brand Dissolved Bone	" " " " " "	4 67	4.55	5.25	14.47	3.49	2.24	33.15	785
786	Ground Steamed Bone	Swift & Company, Chicago, Ills	0.00	6.67	20.09	26.76	3.43	0.00	35.07	786
787	Raw Bone Meal	" " " "	0.00	2.60	19.37	21.97	5.66	0.00	36.16	787
837	Corn Grower	E. Rauh & Sons, Indianapolis, Ind	3.54	4.20	5.17	12.91	1.76	3.94	26.55	837
849	Tecumseh O. I. O. Phosphate	Bowker Fertilizer Co., Boston, Mass	9.59	3.90	1.02	14.51	0.14	0.00	22.70	849
852	Corn Fertilizer	Robt. B. Brown, Oil Co., St. Louis, Mo.	5.62	1.60	0.10	7.32	4.18	2.13	30.30	852
853	Pure Raw Bone Meal	Empire Carbon Works, St. Louis, Mo	0 00	7.09	17.91	25 00	4.72	0.00	39.08	853
854	Quaker City Fertilizer	Thomas Mertz, Richmond, Ind	0.00	7.70	6.22	13.92	5.54	0 53	36.63	854
855	Pure Raw Bone.	" " " "	0 00	9.44	8.42	17.86	4 39	0.00	35.96	855
856	Clover Leaf Brand Pure Raw Bone Meal	Dunn & Backer, Troy, Ind.	0.00	11.11	14.32	25.43	4 86	0.00	43.86	856
875	Pure Raw Bone	Akin Fertilizer Co., Evansville, Ind	0 00	6 16	14.64	20.80	3.96	0.00	32.90	875
876	Ammoniated Bone Superphosphate	S. M. Hess & Bro., Philadelphia, Pa.	6.28	2.46	1.80	10 54	2.26	2.41	26.09	876
877	Emperor Phosphate	" " " " "	10.48	0.11	0.77	11.36	0.00	1.50	19.21	877
878	Bone	" " " " "	0.00	5.56	15.63	21.19	4.83	0.00	35.66	878
879	Keystone Dissolved Bone Phosphate	" " " " "	6.41	4.31	1.77	12.49	1.22	1.59	24.51	879
880	Acidulated Slaughter House Bone	Nolte & Dolch, St. Louis, Mo	8.27	4.37	1.48	14.12	4.05	0.00	35.69	880
881	Banner Dissolved Bone	Michigan Carbon Works, Detroit, Mich.	0.00	22.88	11.37	34.25	0.00	0.00	43.43	881
882	Jarves' Drill Phosphate	" " " " "	6.19	3.43	0.99	10.61	1.70	0.00	22.11	882

883	Homestead Corn and Wheat Grower	" " " " "	9.01	1.58	0.67	11.26	3.01	2.34	30.99	883
884	Homestead Potato Grower	" " " " "	8.52	1.02	0.68	10.17	4.07	5.05	36.35	884
885	Fresh Ground Bone	Bowker Fertilizer Co., Boston, Mass	0.00	7.60	12.72	20.32	3.95	0.00	33.81	885
886	Ammoniated Dissolved Bone	Jas. McCallum & Co., Dayton, Ohio	1.87	6.71	2.84	11.42	2.20	4.81	29.12	886
887	Superior Fine Ground Bone	" " " " "	0.00	4.88	14.23	19.11	5.53	0.00	36.25	887
888	Miami Phosphate	" " " " "	7.65	2.96	2.41	13.02	1.76	0.00	24.76	888
889	Golden Harvest Superphosphate	" " " " "	1.78	6.55	3.89	12.22	2.90	0.00	26.10	889
890	Spot Cash Fertilizer	" " " " "	0.60	7.01	3.44	11.05	1.55	4.91	25.71	890
891	Dissolved Bone Phosphate and Potash	The Baltimore Guano Co., Baltim'e, Md	10.66	2.59	1.28	14.53	0.00	4.12	26.90	891
892	Dissolved Bone Phosphate	" " " " " "	11.68	2.03	0.95	14.66	0.00	0.00	22.51	892
893	Champion Bone Meal	S. W. Evans, Otisco, O.	0.00	6.98	16.25	23.23	4.30	0.00	36.49	893
894	St. Louis Raw Bone Meal	P. B. Mathiason & Co., St. Louis, Mo	0.00	9.13	11.77	20.90	4.96	0.00	39.53	894
895	Increscent Brand Pure Raw Bone Meal	" " " " " "	0.00	6.63	16.73	23.36	4.34	0.00	36.27	895
896	Dissolved Raw Bone	F. Menring, Bruceville, Md	11.30	3.95	5.37	20.62	1.18	0.00	31.87	896
897	Ammoniated Superphosphate No. 2	" " "	7.43	2.06	4.22	13.71	1.33	1.08	23.92	897
898	Crocker's Animal Bone and Potash	Crocker Fert & Chem. Co., Buffalo, N. Y.	0.00	4.12	13.79	17.91	1.82	1.41	23.11	898
899	Mobile Standard Guano	Mobile Ph. & Ch. Mfg. Co., Mobile, Ala.	8.85	1.82	1.87	12.54	2.34	1.17	28.02	899
900	Standard St. Louis Bone Meal	Wm. Brown & Son, New Albany, Ind	0.00	4.07	12.23	16.30	3.30	0.00	25.73	900
901	Pure Ground Bone	I. P. Thomas & Son Co., Philadelphia, Pa	0.00	2.58	20.11	22.69	4.98	0.00	34.12	901
902	Improved Superphosphate	" " " " " "	8.90	2.66	3.08	14.64	0.57	0.00	22.40	902
903	S. C. Superphosphate	" " " " " "	12.41	0.83	2.53	15.77	0.00	..	22.70	903
904	Wheat Grower	A. B. Mayer Mfg. Co., St. Louis, Mo.	1.34	1.75	11.23	14.32	3.79	0.23	25.60	904
905	Quick Acting Bone	Armour & Co., Chicago, Ill	0.00	8.96	14.84	23.80	2.75	0.00	33.14	905
906	Globe Bone Meal	Globe Fertilizer Co., Louisville, Ky	0.00	6.39	16.07	22.46	4.67	0.00	36.68	906
907	Wheat and Grass Grower	Walton & Whann Co., Wilmington, Del.	6.65	3.68	4.13	14.46	1.07	0.99	24.05	907
908	Bowker's Rendered Bone	Bowker Fertilizer Co., Boston, Mass	0.63	6.50	10.06	17.19	2.17	0.00	25.26	908
909	Pure Bone Dust	Newburg Fertilizer Co., Cleveland Ohio.	0.00	6.45	13.66	20.11	3.66	0.00	31.69	909
910	Champion Fertilizer	" " " " "	5.68	3.35	4.35	13.38	2.80	0.00	27.14	910
911	Western Reserve Fertilizer	" " " " "	5.49	2.63	3.02	11.14	1.68	1.24	22.34	911
912	Raw Bone Meal	Armour Packing Co., Kansas City, Mo.	0.00	4.58	19.62	24.20	4.84	0.00	36.52	912
913	Wheat Fertilizer*	P. B. Mathiason & Co., St. Louis, Mo	5.99	4.06	5.44	15.49	2.03	1.58	28.55	913
914	Wheat Fertilizer	" " " " "	5.67	4.36	6.06	16.09	1.93	1.51	28.64	914
915	Standard Fertilizer	" " " " "	3.40	5.25	6.22	14.87	1.13	1.51	23.45	915
916	Clover Leaf Bd. Fla. Ground Soft Bone Phos	Dunn & Backer, Troy, Ind	0.00	1.18	18.55	19.73	0.00	0.20	13.26	916
917	Clover Leaf Corn, Tob. and Pot. Gr. Amm. Bone Phos	" " " "	0.00	7.93	12.54	20.47	3.14	0.31	31.89	917

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746. The manufacturer states that this brand will also be offered for sale by McCurry, Allen & Co., Scottsburg; Thompson & Corbett Greensburg; and Haxton & Haxton, Worthington.

* 913. Manufacturer claimed error in sending sample. For later analysis see No. 914.

TABLE OF FERTILIZERS LEGALLY ON SALE IN INDIANA, MAY, 1894—Con.

Number.	NAME OF FERTILIZERS.	MANUFACTURERS.	Per Cent. Soluble Phosphoric Acid.	Per Cent. Reverted Phosphoric Acid.	Per Cent. Insoluble Phosphoric Acid.	Per Cent. Total Phosphoric Acid.	Per Cent. of Ammonia.	Per Cent. of Potash.	Estimated Value per Ton.	Number.
918	The Mapes Potato Manure	The Mapes For. & Per. Guano Co., N. Y.	5.81	0.88	3.19	9.88	4.54	7.86	$38.39	918
919	Ammoniated Bone Meal	The Jones Fertilizer Co., Cincinnati, Ohio	0.35	8.17	11.62	20.14	5 36	0.27	40.22	919
920	Pure Ground Bone Flour	“ “ “ “ “ “	0.13	5.39	10.52	16.04	2.69	0.16	25.02	920
921	Pure Raw Bone Meal†	“ “ “ “ “ “	0 00	5.32	18.25	21.57	3.99	0.11	32.76	921
922	Blood and Bone	Armour Packing Co., Kansas City, Mo	0.00	6.83	7.52	14.35	6.79	0.00	39.88	922
923	Special Fruit, Vegetable and Tobacco	“ “ “ “ “ “	0.00	3.13	9.29	12.42	8.84	0.00	42.41	923
924	Animal Tankage and Guano	Loudenback Fertilizer Co., Urbana, O	0.42	6.04	2.37	8.83	1.96	5 14	24.98	924
925	Urbana Special Prize Pot. and Tob. Gr	“ “ “ “ “	8.87	2.65	0.74	12.26	2.73	7.75	37.99	925
926	Quick Acting Bone‡	Armour & Co., Chicago, Ill	0.00	8.17	12.56	20.73	1.68	0.00	26.66	926
927	Crocker's Animal Bone and Potash	Crocker Fer. and Chem. Co., Buffalo, N. Y	0.00	3.28	11.56	14.84	1.64	1.23	19.56	927
928	Crocker's Pure Ground Bone¶	“ “ “ “ “ “ “	0.00	3.78	19.84	23.21	5.16	0.00	36 37	928
929	Crocker's Ground Bone Meal	“ “ “ “ “ “ “	0.00	9.04	19.52	27.56	2.98	0.00	36.30	929
930	Crocker's Niagara Phosphate	“ “ “ “ “ “ “	8.07	3.06	2.10	13.23	0.00	0.00	19.07	930
931	Crocker's New Rival Am. Superphosphate	“ “ “ “ “ “ “	4.87	3.54	3.08	11.49	1.41	2.63	23.54	931
932	Crocker's No. 2 Phosphate	“ “ “ “ “ “ “	6.65	3.76	1.77	12.18	0.00	1.60	19.64	932
933	Crocker's Potato, Hop and Tobacco Phs.	“ “ “ “ “ “ “	3.16	5.54	4.02	12.72	2.61	2.58	28.82	933
934	Crocker's Am. Practical Superphosphate	“ “ “ “ “ “ “	5.76	3.01	1.06	9.83	1.28	1.41	30.97	934
935	Crocker's Am. Wheat and Corn Phos	“ “ “ “ “ “ “	6 77	2.58	1.29	10.64	3.12	1.28	28.50	935
936	Quick Acting Bone	Armour & Co., Chicago, Ill	0.00	6.74	14.88	21.62	3.06	0.00	30.73	936
937	Wheat, Oats and Barley Phosphate	Milsom Rend. and Fer. Co., E. Buffalo, N. Y	7.27	4.09	0.96	12.34	2.35	2.59	30.39	937
938	Vegetable Bone Fertilizer	“ “ “ “ “ “ “	5.49	3.56	0.79	9.84	5.12	5.29	39.73	938
939	Buffalo Fertilizer	“ “ “ “ “ “ “	5.67	3.99	0.96	10.62	4.64	2.09	35.24	939
940	Pure Dissolved Bone	“ “ “ “ “ “ “	6.19	5.60	1.18	12.97	0.00	0 00	19.57	940
941	Erie King	“ “ “ “ “ “ “	5.21	3.47	0.88	9.56	1.39	4.45	24.76	941
942	Buffalo Guano	“ “ “ “ “ “ “	6.68	4.35	1.20	12.23	1.41	0.92	24.55	942

943	Potato and Hop Phosphate.	" " " " " " "	5.76	4.22	0.93	10.91	3.94	5.00	36.71	943
944	Dissolved Bone and Potash	" " " " " " "	5.10	4.40	1.02	10.52	0.00	1.81	17.98	944
945	Cyclone Pure Bone Meal	" " " " " " "	0.00	7.65	18.68	26.33	4.34	0.00	39 22	945
946	Raw Bone Meal.	The Jones Fertilizer Co, Cincinnati, Ohio	0.00	6.60	15.84	22.44	4.17	0.00	35.08	946
947	Raw Bone Meal	A. Hopkins & Son, New Albany, Ind	0.00	4.30	16.68	20.98	4.41	0.00	37.76	947
948	Eagle Fertilizer	Globe Fertilizer Co., Louisville, Ky	6.81	1.98	2 92	11.71	2.30	1.97	26.46	948
949	Progress Phosphate	" " " " "	7.30	1.79	3.49	12.58	2.01	1.18	25.29	949
950	Globe Wheat Grower.	" " " " "	6.75	1.34	3.08	11.17	2.51	2.07	26.31	950
951	Entire Superphosphate	Western Union Chem. Co., Cleveland, O.	6.95	4.72	1.84	13.51	2.10	0.00	27.34	951
952	Improved Bone	" " " " " "	3.75	9.68	7 29	20.72	3.06	0.00	36.88	952
953	Potato and Tobacco Fertilizer	" " " " " "	5 69	3.74	2.47	11.90	1.88	3.87	27.98	953
954	Half and Half	" " " " " "	7.92	3 68	5.62	7.22	2.56	0.00	31 15	954
955	Chicago Raw Bone Meal	Northwestern Fertilizing Co., Chicago, Ill.	0.00	3.71	13.77	17.48	3.98	0.00	28.53	955
956	Ground Raw Bone	" " " " "	0.00	4.63	13.25	17 88	3.51	0.00	27.99	956
957	Ralston's Bone Meal	" " " " "	0.00	6.27	13.00	18.27	3 98	0.00	30.56	957
958	Fine Raw Bone.	" " " " "	0 00	6 55	16.94	23.49	5.00	0.00	38.64	358
959	Pure Ground Bone	" " " " "	0.00	4.73	17.17	21 90	3 23	0.00	29.50	959
960	Challenge Corn Grower	" " " " "	5.23	3.36	4.41	13.00	2.78	1 35	28.02	960
961	Ammoniated Dissolved Bone	" " " " "	5.22	3 15	4.36	12.73	2.83	1 27	27.72	961
962	Garden City Super-Phosphate	" " " " "	5.30	2.75	4.54	12.59	2.75	1.25	27.00	962
963	National Bone Dust	" " " " "	5.39	3.06	4.16	12.61	2.75	1.27	27.44	963
964	Prairie Phosphate	" " " " "	3.53	2.98	4.36	10.87	2.27	0.45	21.77	964
965	Twenty-Six Dollar Phosphate	" " " " "	3.54	2.49	4.40	10.43	2.27	0.22	20.72	965
966	Ky-Ana Phosphate.	" " " " "	3.95	2.20	2.74	8.89	1.62	0.47	17.88	966
967	Superphosphate and Raw Bone Mixture	" " " " "	4.23	4.15	7.94	16.32	3.33	0.43	30.68	967
968	Potato Grower	" " " " "	3.76	3.81	4.44	12.01	3.34	1.96	29.15	968
969	Crocker's Pure Ground Bone	Crocker Fer. & Chem. Co., Buffalo, N. Y.	0.00	6.96	19.01	25.97	4.37	0.00	38.27	969
970	Pure Fine Ground Bone	Thompson & Edw'ds Fer. Co., Chicago, Ill.	0.00	5.07	14.15	19.22	3.85	0.00	30.48	970
971	Coarse Raw Bone.	" " " " " "	0.00	7.42	17.58	25.00	4.88	0.00	39.99	971
972	World of Good Raw Bone Wheat Grower	" " " " " "	0.00	9.64	2.97	12.61	6.11	1.70	41.24	972
973	World of Good Pot., Tob. & Veg. Grower	" " " " " "	0 00	7.90	11.03	18.93	4.36	4.01	39.77	973
974	Pig's Foot Brand Chicago Bone Meal	" " " " " "	0.00	5.37	11.26	16.63	4.61	3.71	36 40	974
975	Indiana Sure Growth Phosphate	" " " " " "	4.14	4.41	6.70	15.25	1.76	0.56	24.71	975
976	World of Good Raw Bone Superp'sphate	" " " " " "	3.53	4.47	7.45	15.45	2.31	2.31	23.16	976
977	Butcher's Bone Meal.	Walker, Stratman & Co., Pittsburg, Pa.	0.00	2.02	14.43	16.45	4.09	0.00	26.61	977
978	Pure Raw Bone Meal.	" " " " "	0.00	8.08	14.92	23.00	4.32	0.09	37.43	978
979	Big Bonanza Fertilizer.	" " " " "	6.01	2.05	1.48	9.54	2.36	2.85	25 70	979
980	Help-Mate Superphosphate	" " " " "	12.19	1.87	1.62	15.68	0.00	0.00	23.47	980
981	Banner Fertilizer	" " " " "	6.22	1.84	1.71	9.77	2.40	2.33	25.36	981

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† 921. Manufacturer claimed error in sending sample. For later analysis see No. 946.
‡ 926. Manufacturer claimed error in sending sample. For later analysis see No. 936.
¶ 928. Manufacturer claimed error in sending sample. For later analysis see No. 969.

TABLE OF FERTILIZERS LEGALLY ON SALE IN INDIANA, MAY, 1894—Con.

Number.	NAME OF FERTILIZERS.	MANUFACTURERS.	Per Cent. Soluble Phosphoric Acid.	Per Cent. Reverted Phosphoric Acid.	Per Cent. Insoluble Phosphoric Acid.	Per Cent. Total Phosphoric Acid.	Per Cent. of Ammonia.	Per Cent. of Potash.	Estimated Value per Ton.	Number.
982	Potato Special Fertilizer	Walker, Stratman & Co., Pittsburg, Pa.	3.76	2.74	1.25	7.75	1.97	8.60	28.56	982
983	Four-Fold Fertilizer	“ “ “ “ “	7.06	3.43	1.59	12.08	1.86	3.75	28.93	983
984	Corn and Spring Fertilizer	Armour Packing Co., Kansas City, Mo.	0.00	2.32	3.32	5.64	2.19	0.00	13.59	984
985	Acme Bone	Newburgh Fertilizer Co., Cleveland, O.	5.18	4.24	9.16	18.58	2.05	0.00	27.95	985
986	Ammoniated Acid Phosphate	“ “ “ “	5.51	5.04	1.25	11.80	2.73	0.00	27.46	986
987	Champion with Potash	“ “ “ “	6.35	4.20	2.81	13.36	2.75	3.38	32.52	987
988	Currie's Falls City Raw Bone Meal	The Currie Fertilizer Co., Louisville, Ky.	6.09	3.79	6.37	16.25	1.33	1.62	26.36	988
989	Currie's Dissolved Bone	“ “ “ “ “ “	7.56	2.01	1.24	9.81	1.46	2.95	24.85	989
990	Currie's Black Diamond Phosphate	“ “ “ “ “ “	7.59	2.13	1.04	10.76	0.63	0.94	19.57	990
991	Currie's Wheat Grower	“ “ “ “ “ “	6.67	3.03	4.70	14.40	1.89	1.27	26.67	991
992	Currie's Falls City Phosphate	“ “ “ “ “ “	6.37	1.65	4.49	12.51	1.84	1.17	23.55	992
993	Currie's Corn Grower	“ “ “ “ “ “	6.36	3.10	4.70	14.16	1.98	1.23	26.56	993
994	Currie's Raw Bone Meal	“ “ “ “ “ “	0.00	5.43	17.01	22.44	5.12	0.00	37.32	994
995	Currie's Guano	“ “ “ “ “ “	6.23	3.06	1.33	10.62	1.76	2.54	25.04	995
996	Acidulated Bone	Jones Fertilizer Co., Cincinnati, Ohio.	2.96	5.66	7.78	16.40	4.87	0.00	35.99	996
997	Tobacco and Potato	“ “ “ “ “	1.87	4.47	5.25	11.59	5.25	6.38	39.85	997
998	Miami Valley Phosphate	“ “ “ “ “	5.65	0.88	4.91	11.44	3.96	2.71	30.90	998
999	Soft Bones	Robert Bausback, Shelbyville, Ind.	0.00	7.53	16.78	24.31	3.96	0.00	36.37	999
1000	Lister's Potato Manure	Lister's Agr. Chem. Works, Newark, N. J.	6.56	1.78	0.64	8.98	4.15	4.30	33.83	1000
1001	Packing House Bone	Wm. Brown & Son, New Albany, Ind.	0.00	6.36	10.17	16.53	4.68	3.72	37.59	1001
1002	Indiana Corn Grower	Pure Bone Fert'z'r Co., Leavenworth, Ind.	13.62	1.42	1.46	16.50	0.00	0.00	24.94	1002
1003	Special Dissolved Bone and Potash	“ “ “ “ “ “	8.10	6.71	1.36	16.17	0.00	2.17	27.11	1003
1004	Pure Bone Meal	“ “ “ “ “ “	0.00	5.42	21.01	26.43	2.66	0.00	30.85	1004
1005	R. S. B. Diam'd Soluble Bone and Potash	Walton & Whann Co., Wilmington, Del.	9.03	5.92	1.07	16.02	0.00	3.48	28.73	1005
1006	Special Dissolved Bone	“ “ “ “ “	8.44	3.92	2.07	11.43	0.00	0.00	21.02	1006
1007	Diamond Soluble Bone and Potash	“ “ “ “ “	10.23	5.81	1.10	17.14	0.00	2.26	29.04	1007

1008	Diamond Soluble Bone	“ “ “ “ “	11.54	3.59	1.37	16.50	0.48	0.00	26.76	1008
1009	Reliance Dissolved Bone	“ “ “ “ “	12.56	2.89	1.77	17.22	0.00	0.00	25.78	1009
1010	Eureka Phosphate	McCurry, Allen & Co., Scottsburg, Ind	1.30	4.91	13.80	20.01	2.86	4.16	33.50	1010
1011	Fruit and Tree Fertilizer	Cleveland Dryer Co., Cleveland, Ohio.	6.84	3.06	2.28	12.18	3.01	6.40	35.72	1011
1012	Potato and Vegetable Fertilizer	“ “ “ “ “	6.42	3.41	2.09	11.92	4.38	4.26	37.86	1012
1013	Soluble Bone Phosphate	Springfield (Ohio) Fertilizer Co	5.49	1.82	1.47	8.78	1.26	2.10	19.63	1013
1014	Atlas Bone Phosphate	“ “ “ “	6.50	2.49	2.28	11.27	2.10	2.15	25.89	1014
1015	Globe Bone Phosphate	“ “ “ “	8.24	2.62	2.74	13.60	2.17	2.44	29.76	1015
1016	Pure Ground Bone	“ “ “ “	0.00	4.35	16.99	21.34	4.74	0.00	34.22	1016
1017	Special Corn, Potato and Tobacco Fert.	E. Rauh & Sons, Indianapolis, Ind	7.84	1.59	2.03	11.46	4.65	5.50	37.85	1017
1018	Bowker's Superphosphate	Bowker Fertilizer Co., Boston, Mass.	9.24	2.95	2.85	15.04	0.00	0.00	21.21	1018
1019	Bowker's Sure Crop Bone Phosphate	“ “ “ “ “	5.48	2.22	5.40	13.10	1.28	1.33	21.76	1019
1020	C. O. D. Phosphate	Jarecki Chemical Co., Sandusky, Ohio	7.50	7.12	1.45	16.07	0.00	0.00	24.26	1020
1021	Bone and Phosphate Mixture	“ “ “ “ “	6.01	6.96	3.51	16.48	2.27	1.48	32.81	1021
1022	Fish and Potash Tobacco & Potato Food.	“ “ “ “ “	8.09	1.78	1.52	11.39	3.13	4.16	32.96	1022
1023	Lake Erie Fish Guano	“ “ “ “ “	8.61	2.57	1.41	12.59	2.70	2.28	31.19	1023
1024	Pure Ground Bone	“ “ “ “ “	0.00	5.22	16.22	21.44	5.43	0.00	37.63	1024
1025	Superphosphate	“ “ “ “ “	4.76	4.04	3.43	12.23	1.03	1.25	21.71	1025
1026	Valley City Corn Grower.	Madison (Ind.) Fertilizer and Glue W'ks.	3.19	4.52	7.10	14.81	3.38	0.96	29.92	1026
1027	Valley City Phosphate	“ “ “ “ “	5.26	4.16	5.37	14.79	2.27	0.50	27.07	1027
1028	Crocker's Superior Alkaline Bone.	Crocker Fert. & Chem. Co., Buffalo, N. Y.	6.40	4.34	3.43	14.17	0.16	1.43	21.53	1028
1029	Bone Dust	Chas. Umbreit, New Albany, Ind	0.00	7.06	10.80	17.86	3.34	0.00	29.80	1029
1030	Urbana Superphosphate and Potash.	Loudenback Fertilizer Co., Urbana, Ohio.	0.84	8.80	1.23	10.87	2.95	3.39	29.50	1030
1031	Urbana Bone Meal	“ “ “ “ “	4.11	5.96	2.93	13.00	3.35	3.72	34.39	1031
1032	Ground Bone	Becker & Schmadel, Evansville, Ind.	0.00	7.11	17.96	25.07	2.70	0.00	31.86	1032
1033	Pure Bone Phosphate	Tripp Bros., North Vernon, Ind.	1.75	8.10	5.35	15.20	4.86	0.32	36.61	1033
1034	Special Dissolved Bone and Potash	Pure Bone Fer. Co., Leavenworth, Ind.	13.48	1.68	1.78	16.94	0.00	3.06	29.00	1034
1035	Diamond Soluble Bone and Potash	Walton & Whann Co., Wilmington, Del.	9.31	6.80	0.50	16.61	0.00	3.07	29.76	1035
1036	Diamond Soluble Bone and Potash R S.B	“ “ “ “ “	10.75	4.00	0.40	15.15	0.00	5.12	29.98	1036
1037	Dissolved Bone and Potash	Pure Bone Fer. Co., Leavenworth, Ind.	6.36	1.81	2.01	10.18	3.64	2.61	30.51	1037
1038	Slaughter House Bone	“ “ “ “ “	0.00	4.28	9.01	13.29	3.73	0.00	25.68	1038
1039	Dissolved Bone Black Wheat Special††	The Jarecki Chemical Co., Sandusky, O.	17.07	2.93	1.59	21.59	0.09	6.80	41.44	1039
1040	Bone Black Fertilizer	Nolte & Dolch Fer. Co., St. Louis, Mo.	3.02	5.57	3.49	12.08	2.83	0.00	26.03	1040
1041	Jones' Reliable	The Jones Fertilizer Co., Cincinnati, O.	1.28	5.07	3.35	9.70	3.19	2.54	26.70	1041
1042	Packing House Bone	Alex. Miller & Co., Corydon, Ind.	.	.	. . .	. . . .	. . .	. . .	. . . .	1042

§ 1003, 1005, 1007. Manufacturer claimed error in sending samples. For later analyses see Nos. 1034, 1035, 1036.

†† 1039. Manufacturer claims error in sending sample of goods; were not intended to contain potash.

Farmers are advised to buy only such goods as bear the State Chemist's analysis. Persons selling goods that are not labled are committing an offense against the laws of the State. The label indicates that the manufacturer has made an affidavit that the goods are as represented.

Experience in other States has shown that the reputable manufacturer and dealers are willing to conform to the laws; and that when goods are offered for sale without the official or legal label they are of an inferior quality. It is generally those who offer adulterated goods who do not wish the quality of their goods known.

CEREAL AND ROOT CROP STATISTICS FOR 1893.

COMPILED BY W. A. PEELLE, CHIEF OF STATE BUREAU OF STATISTICS FOR INDIANA.

WHEAT.

The yield of Indiana compared for ten years:

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1893	38,114,708	2,550,014	14.87
1892	42,126,144	2,654,645	15.86
1891	58,305,796	2,891,922	20.09
1890	28,352,346	2,821,129	10.5
1889	41,541,570	2,773,883	14.9
1888	28,750,764	2,726,111	10.5
1887	39,096,657	2,794,196	13.9
1886	43,226,317	2,803,922	15.4
1885	31,640,086	2,732,250	11.5
1884	40,531,200	2,990,811	13.5

The greatest producing counties for 1893:

COUNTY.	Bushels.	Yield per Acre.
Posey	1,167,660	19
Gibson	1,153,280	17
Rush	923,580	18
Shelby	917,120	16
Montgomery	863,515	17

Greatest average yield per acre:

COUNTY.	Acres Sown.	Bushels per Acre.
Posey	64,870	19

CORN.

The yield in Indiana compared for ten years.

Year.	Bushels.	Acres.	Average Bushels Per Acre.
1893	84,045,722	3,488,822	24.09
1892	111,217,463	3,563,337	31.2
1891	125,092,649	3,637,927	34.33
1890	87,092,513	3,446,459	25.2
1889	106,542,161	3,418,051	31
1888	128,436,284	3,419,377	37.5
1887	70,017,604	3,239,914	21.6
1886	108,217,209	3,229,445	33.5
1885	115,438,914	3,216,997	35.8
1884	89,159,799	3,137,840	28.4

The greatest producing counties for 1893:

County.	Bushels.	Yield Per Acre.
Tippecanoe	2,060,500	25
Randolph	2,048,310	33
Rush	1,916,310	33
Clinton	1,900,858	31
Shelby	1,783,890	27

Greatest average yield per acre:

County.	Acres.	Bushels Per Acre.
Greene	44,720	36

OATS.

The yield in Indiana compared for ten years:

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1893	32,015,229	1,206,301	26.54
1892	27,369,719	1,103,958	24.72
1891	23,123,189	897,952	25.75
1890	15,556,207	1,019,398	13.2
1889	28,710,935	950,231	30.2
1888	27,493,851	937,143	29.3
1887	24,378,984	886,927	27.7
1886	28,330,102	872,261	32.4
1885	25,228,033	822,934	30.7
1884	23,576,117	791,843	29.7

The greatest producing counties for 1892:

COUNTY.	Bushels.	Yield per Acre.
Allen	2,428,200	30
Benton	1,603,800	30
Newton	1,192,320	36
Tippecanoe	975,680	32
Warren	783,600	30

Greatest average yield per acre:

COUNTY.	Acres.	Bushels per Acre.
Montgomery	10,241	40

BARLEY.

The yield in Indiana compared since 1885:

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1893.	214,544	10,621	20.2
1892.	231,842	10,810	21.44
1891.	467,773	21,388	21.87
1890.	387,802	22,745	17
1889.	416,325	19,825	21
1888.	403,515	18,913	21.3
1887.	340,663	17,311	18.5
1886.	330,078	13,577	24.3
1885.	155,531	9,186	16.3

The greatest producing counties for 1893:

COUNTY.	Bushels.	Yield per Acre.
St. Joseph	48,260	19
Dearborn.	40,446	27
Laporte.	16,430	19
Jefferson	12,936	22
Franklin	11,960	26

Greatest average yield per acre:

COUNTY.	Acres.	Bushels per Acre.
Randolph	141	35
Shelby	170	35

RYE.

The yield in Indiana compared since 1885:

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1892	927,843	62,976	14.73
1891	808,148	44,845	18.2
1890	784,191	58,785	13.3
1889	871,216	54,451	16
1888	545,425	35,497	15.3
1887	450,750	33,871	13.6
1886	522,321	36,581	14.2
1885	440,597	29,875	14.7

The greatest producing counties for 1893:

COUNTY.	Bushels.	Bushels per Acre.
Elkhart	73,164	14
Lagrange	66,572	17
Allen	47,000	20
Madison	37,962	18
Porter	35,984	16

Greatest average yield per acre:

COUNTY.	Acres.	Bushels per Acre.
Rush	215	25
Tipton	810	25
Kosciusko	470	25

BUCKWHEAT.

The yield in Indiana compared since 1889:

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1893	109,524	9,456	12.64
1892	129,762	9,612	13.5
1891	151,450	9,541	17.25
1890	86,916	6,388	13.6
1889	89,754	6,411	14

The greatest producing counties for 1893:

COUNTY.	Bushels.	Bu. per Acre.
Starke	10,125	25
Laporte	9,720	18
St. Joseph	5,540	20
Marshall	4,680	13
Porter	4,500	20

Greatest average yield per acre:

COUNTY.	Acres.	Bu. per Acre.
Morgan	27	40

FLAXSEED.

The yield in Indiana compared since 1885:

Year.	Bushels.	Acres.	Average Bushels per Acre.
1893	100,934	12,461	8.1
1892	98,467	12,788	7.7
1891	116,460	14,146	8.24
1890	89,839	12,097	6.8
1889	78,142	10,640	7.3
1888	101,693	13,949	7.2
1887	107,208	14,872	7.2
1886	153,128	18,268	8.8
1885	132 181	17,767	7.4

The greatest producing counties for 1893:

County.	Bushels.	Bu. per Acre.
Wabash	13,140	15
Wayne	9,680	8
Randolph	9,480	8
Wells	8,785	9
Grant	6,720	8

Greatest average yield per acre:

County.	Acres.	Bu. per Acre.
Wabash	876	15

CLOVER HAY.

The yield in Indiana compared for ten years:

YEAR.	Tons.	Acres.	Average Tons per Acre.
1893	1,793,768	1,087,132	1.65
1892	1,910,852	1,174,341	1.62
1891	2,109,814	1,208,672	1.75
1890	2,057,188	1,196,040	1.7
1889	2,349,528	1,174,764	2
1888	1,311,450	1,061.846	1.2
1887	1,728,776	1,121,314	1.5
1886	1,770,528	1,075,717	1.6
1885	1,662,277	1,042,759	1.6
1884	1,501,860	908,238	1.6

The greatest producing counties for 1893:

COUNTY.	Tons.	Tons per Acre.
Allen	38,753	1.75
Clinton	37,744	2
Gibson	37,345	1 75
Rush	37,005	1.75
Wabash	36,490	1.5

TIMOTHY HAY.

The yield in Indiana compared for ten years:

YEAR.	Tons.	Acres.	Average Tons per Acre.
1893	1,580,269	1 128,764	1.4
1892	1,814,835	1,209,890	1.5
1891	2,034,242	1,257,758	1.6
1890	2,112,457	1,242,622	1.7
1889	1,823,047	1,215,365	1.5
1888	1,548,888	1,237,417	1.2
1887	1,543,558	1,269,870	1.2
1886	1,770,528	1.075,717	1.6
1885	1,944,946	1,374,852	1.4
1884	1,946,342	1,247,099	1.5

The greatest producing counties for 1893:

COUNTY.	Tons.	Tons per Acre.
Jasper	33,240	1.5
Lake	31,762	1.25
Clay	31,723	1.5
Allen	31,115	1.75
White	31,110	1.5

IRISH POTATOES.

The yield in Indiana compared since 1885:

YEAR.	Bushels.	Acres.	Average Bushels Per Acre.
1893	4,172,166	94,642	44.2
1892	4,620,647	87,670	52.7
1891	7,888,701	85,921	91
1890	2,688,875	80,747	33.3
1889	7,783,267	79,213	98.2
1888	5,480,960	76,148	71.9
1887	2,216,130	77,306	28.6
1886	5,392,021	71,055	74.8
1885	5,801,524	74,434	77.9

The greatest producing counties in 1893:

COUNTY.	Bushels.	Bushels Per Acre.
Allen	191,360	46
Vanderburgh	134,100	70
Marion	129,080	28
Spencer	104,696	46
Laporte	103,960	46

Greatest average yield per acre:

COUNTY.	Acres.	Yield.
Gibson	670	100

SWEET POTATOES.

The yield in Indiana compared since 1885:

YEAR.	Bushels.	Acres.	Average Bushels per Acre.
1893	202,496	3,616	56
1892	217,709	3,569	61
1891	247,086	3,339	74
1890	158,700	2,645	60
1889	194,040	2,772	70
1888	234,832	3,272	71
1887	167,387	3,214	52
1886	222,390	3,003	74
1885	183,928	2,552	72

The greatest producing counties in 1893:

COUNTY.	Bushels.	Bushels per Acre.
Marion	11,840	37
Switzerland	11,200	350
Vigo	7,680	40
Knox	7,482	87
Vanderburgh	6,786	78

Greatest average yield per acre:

COUNTY.	Acres.	Yield.
Switzerland	32	350

TOBACCO.

The yield in Indiana compared since 1889:

YEAR.	Pounds.	Acres.	Pounds per Acre.
1892	11,074,211	13,574	725¼
1891	10,720,328	13,818	775¾
1889	11,208,371	13,739	815½
1888	10,204,921	16,408	622

The greatest producing counties in 1893:

COUNTY.	Pounds.	Acres.	Pounds per Acre.
Warrick	2,929,590	3,870	757
Spencer	2,121,060	3,180	667
Switzerland	1,406,000	1,480	950
Dubois	875,200	1,094	800
Jefferson	484,0 0	605	800

Greatest average yield per acre.

COUNTY.	Acres.	Yield in Pounds.
Harrison	27	1,950

WHEAT.

THE YIELD BY COUNTIES.

Statement showing by counties the acreage sown in wheat in 1893, the average yield per acre and total product in bushels; also the acreage and product in 1892.

COUNTIES.	Acreage in 1893.	Yield Per Acre.	Product in Bushels 1893.	Acreage in 1892.	Yield Per Acre.	Product in Bushels. 1892.
Adams	17,326	15	259,890	18.420	12	221,040
Allen	45,425	15	1,135,625	38,210	9	343,890
Bartholomew	47,520	15	712.800	49,760	13	646.880
Benton	1,075	12	12,900	910	14	12,740
Blackford	4,746	15	71,190	9,876	15	148,140
Boone	39.761	17	675,937	41,790	18	752.220
Brown	8.075	15	121,125	8,175	15	122,625
Carroll	39,420	16	630,720	47.387	16	758,192
Cass	41,760	17	509,920	43,920	15	658,800
Clark	17,100	16	273,600	17,210	17	292,570
Clay	14,560	14	203,840	14,760	17	250,920
Clinton	46,120	16	737,920	47,210	18	849,780
Crawford	9,817	13	127,621	9,910	15	148,650
Daviess	40.151	13	521,963	42,760	19	812,440
Dearborn	20,780	16	332,480	21,990	14	307,860
Decatur	34,210	16	547,360	34,170	17	580,890
Dekalb	28,740	16	459,840	29,760	11	327,360
Delaware	37,121	13	482,573	38,120	16	609,920
Dubois	28,210	13	366,730	29,110	18	523,980
Elkhart	45,650	15	685,250	46,721	14	654,094
Fayette	23.210	16	371,360	24,120	15	361,800
Floyd	6.712	16	107,392	6,710	16	107,360
Fountain	35,830	11	394,130	36,925	19	710,575
Franklin	29.480	15	442,200	30,270	14	423,780
Fulton	30,140	15	452,100	31,120	14	435,680
Gibson	67,840	17	1,153,280	69.751	20	1,395,020
Grant	31.350	15	470,250	23,220	15	498,300
Greene	20,840	15	312,600	21,760	17	369,920
Hamilton	43,870	16	701,920	45,521	18	819,378
Hancock	35,210	17	598,570	36,120	14	505,680
Harrison	30.075	15	451,125	34,121	17	580,057
Hendricks	32,540	15	488,100	33,420	17	568,140
Henry	45,120	14	631,680	46,128	14	645,792
Howard	35,221	18	633,978	35,721	17	607,257
Huntington	28,070	17	477,180	28,128	13	365,664
Jackson	28.876	13	375.388	29,999	15	449.985
Jasper	3,825	13	49,725	3,817	12	45,804
Jay	20,175	13	262,275	20,270	14	283,780
Jefferson	18,090	16	289,440	18,170	17	308,890
Jennings	18,120	15	271,800	18,925	15	283,875

WHEAT—Continued.

COUNTIES.	Acreage in 1893.	Yield Per Acre.	Product in Bushels 1893.	Acreage in 1892.	Yield Per Acre.	Product in Bushels. 1892.
Johnson	36,320	18	653,750	37,430	15	561,900
Knox	56,110	14	785,540	58,120	21	1,220,520
Kosciusko	44,130	16	750,080	45,261	13	588,393
Lagrange	37,195	15	557,925	38,270	14	535,780
Lake	1,820	12	21,840	1,740	17	29,580
Laporte	40.076	12	480,912	41,290	16	660,640
Lawrence	13,176	15	197,640	13,110	18	235,980
Madison	45,139	15	677,085	47,275	17	66 ,850
Marion	36,120	18	650.160	37,125	14	519.750
Marshall	34,280	15	514,200	35,290	13	458,770
Martin	13,120	12	157,440	13,210	11	145,310
Miami	40,120	12	481,440	41,462	15	621,930
Monroe	10,125	17	172,125	10.217	18	183,906
Montgomery	50,795	17	863,515	52,876	18	951,768
Morgan	25,110	11	276,210	26,173	13	304,249
Newton	1,410	17	23,970	1,407	16	22,512
Noble	37,898	11	416,878	39,981	13	519,753
Ohio	5,715	18	102.870	5,817	16	93,072
Orange	13,125	15	196,875	13,425	16	214,800
Owen	11,317	15	147,121	10,450	14	146,300
Parke	30,890	12	370,680	31,915	20	638,300
Perry	12,869	14	180,166	12,871	12	144,452
Pike	30,398	16	486,368	32,426	22	713,372
Porter	11,310	14	158,340	11,240	17	191,080
Posey	64,870	18	1,167,660	66,980	20	1,339,600
Pulaski	16,131	14	225,820	17,121	12	205,452
Putnam	22,239	12	266,868	32,420	15	336,300
Randolph	38.310	13	498,030	39,440	15	591,600
Ripley	23,110	15	346,650	24,210	16	387,360
Rush	51,310	18	923,580	54,120	16	865,920
Scott	10.113	20	202,260	10,240	18	184 320
Shelby	57,320	16	917,120	60,170	15	902,550
Spencer	28,610	17	400,540	29,760	18	535,680
Starke	4.117	15	61,755	4,210	12	50,520
Steuben	25,140	15	377,100	26,370	15	395,550
St. Joseph	39,740	11	437,140	41,870	14	586,180
Sullivan	21,148	15	317,220	21,240	17	361,080
Switzerland	10,111	16	161,776	10,240	16	163,840
Tippecanoe	36,140	15	542,100	38,210	16	611,360
Tipton	26,312	16	420,992	28,460	15	426,900
Union	14,310	16	228.960	15,410	13	200.330
Vanderburgh	30,140	16	482,241	31,640	18	569,520
Vermillion	20,170	12	242,040	20,870	20	417,400
Vige	22,120	12	265,440	22,440	21	471,240
Wabash	38,312	18	689,616	39,657	16	634,512
Warren	12,460	13	161,980	13,210	16	211,360
Warrick	32,074	16	513,184	34,170	20	683.400
Washington	22,140	14	309,960	23,170	15	347,550
Wayne	39,317	15	589,755	40,281	15	604,215
Wells	23,140	17	393,380	24,410	11	268,510
White	16,175	14	226.450	17,110	17	290,870
Whitley	23,142	15	347,130	24,460	13	317,980
Totals	2,550,014	14.87	38,114,708	2,654,645	15.86	42,126,144

CORN.

THE YIELD BY COUNTIES.

Statement showing by counties the acreage planted in corn in 1893, the average yield per acre, and product in bushels; also the acreage and product in 1892.

COUNTIES.	Acreage in 1893.	Yield Per Acre.	Product in Bushels, 1893.	Acreage in 1892.	Yield Per Acre.	Product in Bushels, 1892.
Adams	31,076	25	776,900	32,170	26	736,420
Allen	45,425	25	1,136,625	46,570	20	931,400
Bartholomew	49,760	18	895,680	50,870	29	1,475,230
Benton	83,110	21	1,745,310	85,120	25	2,128,000
Blackford	19,163	18	344,934	20,170	25	504,250
Boone	59,076	23	1,358,748	60,140	36	2,165,040
Brown	14,120	14	197,680	14,261	23	328,003
Carroll	45,721	24	1,097,304	46,870	28	1,312 360
Cass	43,860	21	921.060	44,990	26	1,169,740
Clark	24,860	28	696,080	24,971	26	649,246
Clay	30,740	55	1,075,900	31,870	35	1,115,450
Clinton	61,318	31	1,900,858	62,420	39	2,434,380
Crawford	18,140	13	235,820	18,870	22	415,140
Daviess	44,130	24	1,203,120	45,120	36	1,624,320
Dearborn	22,141	23	509,243	22,240	25	566,000
Decatur	29,652	23	681,996	39,760	28	1,113,280
Dekalb	26,140	28	731,920	26,070	17	443,190
Delaware	50,890	29	1,475,810	52,170	30	1,565,100
Dubois	26,075	15	391,125	26,660	28	746,480
Elkhart	36,010	26	936,260	37,020	27	999,540
Fayette	24,176	28	676,928	25,025	32	800,800
Floyd	7,780	20	155,600	7,639	25	188.975
Fountain	48,820	22	1,074,040	50,541	35	1,768,935
Franklin	31,920	25	798,000	32,890	27	888,000
Fulton	30,024	18	540,432	30,990	25	774,750
Gibson	44,326	25	1,108,050	45,965	26	1,195,090
Grant	50,180	22	1,103,900	51,740	25	1,293,500
Greene	44,720	36	1,609,920	45,820	27	1,237.140
Hamilton	58,320	27	1,574,640	59,170	38	1,248.460
Hancock	40,760	27	1,100,520	41,890	33	1,382.370
Harrison	31,120	21	653,520	32,008	25	800,200
Hendricks	49,570	24	1,189,680	50,720	35	1,775.200
Henry	52,460	28	1,468,880	54,780	34	1,862,420
Howard	42,590	27	1,149,930	43,690	34	1,485.460
Huntington	38,780	23	891,940	39,820	16	637,120
Jackson	38,740	19	736,060	39,800	27	1,074,600
Jasper	36,760	24	882,240	37,640	26	978,640
Jay	43,390	28	1,214,920	44,450	18	800,100
Jefferson	22,380	24	537,120	23,410	29	678,890
Jennings	20,780	19	394,820	20,870	27	563,490

CORN—Continued.

COUNTIES.	Acreage in 1893.	Yield Per Acre.	Product in Bushels, 1893.	Acreage in 1892.	Yield Per Acre.	Product in Bushels, 1892.
Johnson	43,450	26	1,129,700	44,720	39	1,744,080
Knox	57,030	25	1,425,750	58,120	35	2,034,200
Kosciusko	43,720	22	961,840	44,860	22	986,920
Lagrange	30.120	35	1,054,200	30,240	30	907,200
Lake	25,490	23	586,270	26,550	17	1,114,350
Laporte	39,540	21	830,340	40,510	24	972.240
Lawrence	23,960	14	335.440	24,870	22	547,140
Madison	65,090	25	1,627.250	66,140	28	1,851,920
Marion	35,720	25	893,000	36,890	30	1,106,700
Marshall	35,740	18	643,320	36,810	24	883,440
Martin	22,120	24	530,880	22,390	18	403,020
Miami	42,691	22	939,208	43,710	31	1,355,010
Monroe	22,009	22	484,198	22,170	20	443,400
Montgomery	62,420	28	1,747,760	63,521	36	2,286,756
Morgan	40,890	24	981,360	41,990	29	1,237,710
Newton	45,730	21	960,120	46,620	25	1,165,500
Noble	30,790	30	923,700	31,820	21	668.220
Ohio	6,749	22	148,478	6,741	28	188,748
Orange	25.310	18	455,580	26,250	25	656,280
Owen	22,017	26	572,442	22,140	26	575,640
Parke	39,780	22	875,160	40,870	34	1,389,580
Perry	21,410	21	449,610	22,450	18	404,100
Pike	33,346	23	766,958	34,440	31	1,067,640
Porter	27,410	24	657,840	28,390	22	624,580
Posey	48,890	35	1,711,150	49,980	42	2,099,160
Pulaski	35,570	19	675,830	26,640	25	1,166,000
Putnam	43,870	24	1,052,880	44,960	31	1,393,760
Randolph	62,070	33	2,048,310	63,170	23	1,452,910
Ripley	25,890	21	543,690	26.750	25	668,750
Rush	58,070	33	1,916,310	59,120	36	2,128,320
Scott	14,860	30	445,800	15,170	30	455,100
Shelby	66,070	27	1,783,890	67,160	31	2,081,960
Spencer	38,120	18	686,160	39,140	21	821,940
Starke	7,910	18	142,380	7,940	22	174,680
Steuben	22,120	28	619,360	22,460	22	494,120
St. Joseph	30,070	20	601,400	30,990	24	743,760
Sullivan	54,120	27	1,461,240	55,210	30	1,656,300
Switzerland	17,120	34	582,080	17,250	33	569,250
Tippecanoe	82,420	25	2,060,500	84,210	30	2,526,300
Tipton	41,721	28	1,168,188	42,840	25	1,071,000
Union	16,410	31	508,710	16,960	29	491,840
Vanderburgh	25,040	34	551,360	25,510	37	943,870
Vermillion	36,740	20	734,800	37,810	24	907,440
Vigo	47,420	23	1,090,660	48,920	30	1,467,600
Wabash	47,510	22	1,045,220	48,720	23	1,120,560
Warren	53,620	20	1,072,400	54,710	28	1,531,880
Warrick	37,440	21	828,240	40,510	30	1,215,300
Washington	33,620	21	706,020	34,710	25	867,750
Wayne	56,310	26	1,464,060	57,490	34	1,954,660
Wells	41,528	31	1,287,368	42,540	23	978,420
White	51,328	18	923,904	52,425	24	1,258,200
Whitley	28,540	18	513,720	28,640	18	515,520
Totals	3,488,822	24.09	84,045,722	3,563,337	31.2	111,217,463

OATS.

THE YIELD BY COUNTIES.

Statement showing by counties the acreage sown in oats in 1893, the average yield per acre and total product in bushels; also the acreage and product in 1892:

COUNTIES.	Acreage in 1893.	Yield Per Acre.	Product in Bushels, 1893.	Acreage in 1892.	Yield Per Acre.	Product in Bushels, 1892.
Adams	1,720	24	408,480	16,780	26	436,280
Allen	80,940	30	2,428,200	80,790	20	615,800
Bartholomew	8,860	25	221,500	8,790	26	223,540
Benton	53.460	30	1,603,800	52,410	22	1,153,020
Blackford	4,987	27	134,649	4,835	25	120,875
Boone	7,960	24	191,040	7,820	29	226,780
Brown	5,410	25	112,750	5,340	25	133.500
Carroll	10,460	26	271,960	9,035	18	162,630
Cass	10,760	24	258,240	9,957	25	248,925
Clark	7,080	28	198,240	6,970	20	139,400
Clay	12,146	28	340,088	11,840	20	236,800
Clinton	11,960	31	370,760	11,240	30	337,200
Crawford	6,910	23	158,930	6,825	16	109,200
Daviess	12,460	25	311,500	11,920	28	333,760
Dearborn	8,940	28	250,320	8,410	21	176,610
Decatur	10,120	33	333,960	9,073	33	299,409
Dekalb	19,540	27	527,580	18,913	20	378,260
Delaware	5,860	28	152,360	5,579	30	167.370
Dubois	15,126	17	257,142	14,175	23	326,025
Elkhart	20,170	24	484,080	19,050	26	495,900
Fayette	4,346	28	121,688	4,296	26	111,696
Floyd	2,926	27	80,002	2,725	20	54,500
Fountain	11,980	23	275,540	11,179	22	245,938
Franklin	16,049	26	261,274	9,689	24	232,536
Fulton	10,076	25	276,900	10,570	19	200,830
Gibson	9,987	27	269,649	8,953	27	241,031
Grant	9.142	24	219,408	8,672	21	182.112
Greene	12,949	22	284,878	12,295	24	295.080
Hamilton	7,981	30	239,430	7,738	31	239.878
Hancock	7,548	28	211,344	7,220	30	216,200
Harrison	11,476	28	310,128	11,851	25	296,275
Hendricks	11,129	31	344,799	10,178	31	315,518
Henry	7.588	28	202,464	7,136	34	242,624
Howard	5,098	34	173,332	4,595	28	128,660
Huntington	17,620	30	534,600	17,295	23	397,785
Jackson	14,522	27	392,094	14,470	26	376,220
Jasper	21,084	32	674,688	20,159	26	524,134
Jay	17.940	26	466,440	17,580	30	527,400
Jefferson	5,425	18	97,650	5,323	27	143,721
Jennings	7,088	20	141,760	6,949	26	180,674

OATS—Continued.

COUNTIES.	Acreage in 1893.	Yield Per Acre.	Product in Bushels, 1893.	Acreage in 1892.	Yield Per Acre.	Product in Bushels, 1892.
Johnson	5,722	31	177,382	5,075	37	187,775
Knox	8,791	22	193,402	8,370	30	251,100
Kosciusko	20,921	26	543.946	20,265	23	466,095
Lagrange	11,817	30	354.510	11,315	27	305,505
Lake	23,410	26	708,660	22,753	19	432,307
Laporte	23,580	23	542,340	22,160	23	509,680
Lawrence	12.896	27	348,192	12,425	31	385,175
Madison	7,440	31	230,640	6,890	34	234,260
Marion	11,310	30	339,300	10,506	29	304,674
Marshall	16,825	23	386,975	16,140	21	338,940
Martin	8,912	32	285,184	8,710	26	226,460
Miami	6.915	25	172.875	6,883	30	206.490
Monroe	9.951	30	298,530	9,486	26	246,663
Montgomery	10,241	40	409.640	9.817	26	255,242
Morgan	8,962	28	250,936	8,593	17	146,081
Newton	33,120	36	1,192,320	32,375	24	777,000
Noble	15,928	28	445,984	15,216	28	426,048
Ohio	1,310	30	39,300	1,220	30	36,600
Orange	15.076	26	391,976	14,485	24	347,640
Owen	10.920	26	283,920	10,250	25	256,250
Parke	10.121	29	293,509	9,567	30	287,010
Perry	6,992	22	153,824	6,765	22	148,830
Pike	9,833	22	216.326	9,429	45	424,305
Porter	21.140	25	528,500	20.621	25	515,525
Posey	8,978	23	206,494	5,778	26	155,228
Pulaski	12,875	23	296,125	12,015	17	204,255
Putnam	10,230	28	286,440	9,790	24	234,960
Randolph	16,175	23	372,025	15,512	30	465.360
Ripley	11,820	27	319,140	11,447	18	206,046
Rush	7,985	26	207,610	7,543	32	241,376
Scott	4.725	34	160,650	4,545	40	181,800
Shelby	8,210	24	197.040	7.899	29	229,071
Spencer	12.076	24	289.824	11,737	23	269,951
Starke	3,480	18	62,640	3,369	17	57,273
Steuben	10,176	26	264,576	9,635	27	260,145
St. Joseph	16,210	22	356,620	15.149	25	378,725
Sullivan	16,120	31	499,720	15.655	23	360,065
Switzerland	3,010	25	75,250	2,938	22	64,636
Tippecanoe	30,490	32	975,680	29,670	26	771.420
Tipton	2,549	25	63,725	2,334	5	11,670
Union	2,619	31	81,189	2.400	38	91,200
Vanderburgh	4,412	25	110,300	4,131	26	107,406
Vermillion	9,110	26	236,860	8,799	27	237,573
Vigo	14,820	22	326,040	14,237	23	327,451
Wabash	14,690	27	396,630	13,885	28	388,780
Warren	26,120	30	782.600	25,280	25	632,000
Warrick	13.980	27	378,460	13,347	26	346,810
Washington	17,010	25	425,250	16,580	24	397,920
Wayne	13,920	25	348,000	13,066	30	391,980
Wells	13,079	30	392,370	12,663	19	240,597
White	31,896	18	574,128	31,050	17	527,850
Whitley	15,080	18	371,440	14,570	27	393,390
Totals	1,206,301	26.54	32,015,229	1,103,958	24.72	27,369,719

BARLEY.

THE YIELD BY COUNTIES.

Statement showing by counties the acreage sown in barley in 1893, the average yield per acre, and total product in bushels; also the acreage and product in 1892.

COUNTIES.	Acreage in 1893.	Yield Per Acre	Product in Bushels, 1893.	Acreage in 1892.	Yield Per Acre.	Product in Bushels, 1892.
Adams	65	20	1,300	70	25	2,250
Allen	130	20	2,600	140	21	2,940
Bartholomew	40	10	400	41	24	504
Benton	39	10	390	43	22	946
Blackford	....	....	....	10	17	170
Boone	....	....	....	40	23	920
Brown	....	....	....	10	27	270
Carroll	....	....	....	16	16	256
Cass	....	....	....	14	19	266
Clark	13	24	312	12	23	276
Clay	....	....	....	....	....	....
Clinton	59	20	1,180	60	27	1,620
Crawford	....	....	....	....	....	....
Daviess	17	18	306	19	28	533
Dearborn	1,498	27	40,446	1,584	26	41,184
Decatur	10	19	190	12	21	252
Dekalb	201	33	6,633	204	25	5,100
Delaware	59	20	1,180	61	20	1,220
Dubois	141	31	4,371	145	30	4,350
Elkhart	74	18	1,332	79	26	2,024
Fayette	21	20	420	20	20	400
Floyd	33	20	660	36	20	720
Fountain	9	10	90	10	30	300
Franklin	460	26	11,960	456	28	12,768
Fulton	....	....	....	....	....	....
Gibson	28	20	560	30	27	710
Grant	431	10	4,310	444	22	9,760
Greene	23	18	414	25	30	750
Hamilton	9	10	90	10	25	250
Hancock	216	25	5,400	215	30	6,450
Harrison	38	30	1,140	40	31	1,240
Hendricks	....	....	....	....	....	....
Henry	29	24	696	31	25	775
Howard	208	15	3,120	210	20	4,200
Huntington	181	20	3,620	180	20	360
Jackson	20	19	380	19	21	399
Jasper	19	20	380	20	23	460
Jay	93	18	1,674	90	32	2,880
Jefferson	588	22	12,936	590	18	10,620
Jennings	38	20	760	40	22	880

BARLEY—Continued.

COUNTIES.	Acreage in 1893.	Yield Per Acre.	Product in Bushels, 1893.	Acreage in 1892.	Yield Per Acre.	Product in Bushels, 1892.
Johnson	17	15	255	16	20	320
Knox	30	20	600	25	18	450
Kosciusko	14	16	224	15	26	390
Lagrange	103	25	2,575	100	22	2,200
Lake	34	20	680	35	21	735
Laporte	970	19	16,430	960	20	19,200
Lawrence	.....	.....	.....	.....	.....	.....
Madison	28	25	700	19	23	437
Marion	170	30	5,100	175	40	7,000
Marshall	62	16	992	60	32	1,920
Martin	17	18	306	15	26	390
Miami	42	20	840	39	35	1,365
Monroe	11	20	220	10	30	300
Montgomery	19	15	285	15	19	285
Morgan	.....	.....	.....	.....	.....	.....
Newton	24	20	480	25	22	550
Noble	26	19	494	24	17	428
Ohio	115	15	1,725	110	15	1,650
Orange	8	15	80	7	20	140
Owen	.....	.....	.....	.....	.....	.....
Parke	21	20	420	19	30	570
Perry	114	17	1,338	110	18	1,980
Pike	13	12	156	12	25	300
Porter	38	20	760	40	30	800
Posey	15	20	300	.....	.....	.....
Pulaski	.....	.....	.....	.....	.....	.....
Putnam	.....	.....	.....	.....	.....	.....
Randolph	141	35	4,935	130	40	5,200
Ripley	15	15	225	13	20	260
Rush	32	20	640	30	15	450
Scott	.....	.....	.....	.....	.....	.....
Shelby	170	35	5,950	164	36	5,904
Spencer	225	25	5,625	220	30	6,600
Starke	21	20	420	20	8	160
Steuben	.....	.....	.....	.....	.....	.....
St. Joseph	2,540	19	48,260	2,554	16	40,864
Sullivan	12	12	144	13	17	221
Switzerland	115	30	3,450	110	20	2,200
Tippecanoe	44	20	880	40	21	840
Tipton	102	18	1,836	105	23	2,415
Union	.....	.....	.....	.....	.....	.....
Vanderburgh	18	20	360	17	26	442
Vermillion	140	20	2,800	150	25	3,750
Vigo	26	19	494	25	28	700
Wabash	31	18	558	30	20	600
Warren	.....	.....	.....	.....	.....	.....
Warrick	19	20	380	17	19	323
Washington	23	12	276	22	20	440
Wayne	212	28	5,936	210	28	5,850
Wells	102	20	2,040	105	30	3,150
White	23	20	460	25	28	700
Whitley	19	20	380	20	18	360
Totals	10,621	20.2	214,544	10,810	21.44	231,842

RYE.

THE YIELD BY COUNTIES.

Statement showing by counties the acreage sown in rye in 1893, the average yield per acre and total product in bushels; also the acreage and product in 1892.

COUNTIES.	Acreage in 1893.	Yield Per Acre.	Product in Bushels, 1893.	Acreage in 1892.	Yield Per Acre.	Product in Bushels, 1892.
Adams	901	20	18,020	920	10	9,200
Allen	2,350	20	47,000	2,460	12	29,520
Bartholomew	240	16	3,840	270	11	2,970
Benton	451	12	5,412	506	11	5,566
Blackford	801	15	12,815	880	17	14,960
Boone	895	18	16,110	937	18	16,860
Brown	70	10	700	65	13	845
Carroll	125	12	1,500	115	12	1,380
Cass	261	14	3,654	295	14	4,130
Clark	112	17	1,904	110	16	1,760
Clay	217	15	3,255	210	13	2,730
Clinton	1,738	19	33,022	1,810	20	36,200
Crawford	82	12	984	80	17	1,360
Daviess	181	11	1,991	170	23	3.910
Dearborn	230	14	3,220	235	11	2,585
Decatur	151	10	1,510	145	17	2,465
Dekalb	560	16	8,960	620	10	6,200
Delaware	1,104	17	18,768	1.175	14	16,450
Dubois	95	10	950	90	9	810
Elkhart	5,226	14	73,164	6,147	12	73,764
Fayette	33	16	330	30	11	330
Floyd	78	17	1,326	70	15	1,050
Fountain	409	15	6,135	440	14	6,160
Franklin	140	12	1,680	130	12	1,560
Fulton	240	13	2,120	245	13	3,185
Gibson	217	12	2,604	210	12	2,520
Grant	820	14	11,484	875	14	12,250
Greene	360	12	4,320	380	8	3.040
Hamilton	755	16	11,380	860	24	20,640
Hancock	260	17	4,420	275	24	6,600
Harrison	188	13	2,444	199	16	3,184
Hendricks	510	15	7,650	540	19	10,260
Henry	115	15	1,725	101	17	1,717
Howard	245	21	5,145	270	25	6,750
Huntington	615	16	9,840	715	11	7,865
Jackson	270	13	3,410	284	10	2,840
Jasper	1,750	13	21,750	1,890	9	17,010
Jay	1,198	11	13,178	1,280	12	15,360
Jefferson	117	9	1,053	115	9	1,035
Jennings	105	18	1,890	101	15	1,515

RYE—Continued.

COUNTIES.	Acreage in 1893.	Yield Per Acre.	Product in Bushels, 1893.	Acreage in 1892.	Yield Per Acre.	Product in Bushels, 1892.
Johnson	68	13	884	65	14	910
Knox	390	10	3,900	420	15	6,300
Kosciusko	470	25	11,750	511	19	9,709
Lagrange	3,916	17	66,572	4.112	17	69,904
Lake	1,937	14	27,118	2,035	16	32,500
Laporte	1,907	14	26,698	1,990	12	23,880
Lawrence	108	15	1,620	105	15	1,575
Madison	2,109	18	37.962	2,221	18	39,978
Marion	394	13	5.122	415	35	14,525
Marshall	1,868	17	31.756	1,970	18	35,460
Martin	149	20	2,980	150	22	3,300
Miami	140	18	2,520	132	19	2,508
Monroe	79	11	870	70	10	700
Montgomery	505	14	7,070	530	16	8.480
Morgan	210	20	4,200	201	17	3,417
Newton	1,246	12	14.952	1,380	11	15,180
Noble	390	15	5,850	405	12	4,860
Ohio	201	15	3,015	210	11	2,310
Orange	49	10	490	45	10	450
Owen	270	14	3,780	265	15	3,975
Parke	240	13	3,123	234	16	3,744
Perry	48	8	384	40	15	600
Pike	310	14	40,340	330	16	5,280
Porter	2,249	16	35,984	2,385	14	33,390
Posey	29	16	464	20	13	260
Pulaski	1,540	10	15,400	1,635	11	17,985
Putnam	240	13	3,120	235	14	3,290
Randolph	338	16	5,408	330	15	4.950
Ripley	150	18	2,700	145	17	2,465
Rush	215	25	5,375	210	12	2,520
Scott	17	10	170	15	10	150
Shelby	210	15	3.150	220	17	3,740
Spencer	53	14	742	50	20	1,000
Starke	2,264	12	27,178	2,385	12	28,620
Steuben	910	17	12,770	980	13	12.740
St. Joseph	1,215	16	19,440	1,315	15	19,725
Sullivan	248	10	2,480	240	11	2,640
Switzerland	1,004	17	17,068	1,075	19	20,425
Tippecanoe	709	16	13,344	805	14	11.270
Tipton	810	25	20,250	890	7	6,230
Union	62	10	620	60	11	660
Vanderburgh	29	15	435	25	17	425
Vermillion	1,240	16	19.840	1,351	16	21,616
Vigo	680	16	10.880	702	19	13,338
Wabash	179	18	3,222	175	18	3,150
Warren	168	12	2.076	170	12	2.040
Warrick	79	13	1,027	76	17	1.292
Washington	52	9	468	49	13	637
Wayne	180	16	2.880	176	19	3,344
Wells	1,710	17	29,070	1,820	10	18,200
White	1,850	10	18,500	1,261	10	12,610
Whitley	102	10	1.020	90	11	990
Totals	59,751	14.66	875,949	62,976	14.73	927,843

BUCKWHEAT AND FLAXSEED.

THE YIELD BY COUNTIES.

Statement showing by counties the acreage sown in buckwheat and flaxseed in 1893, the average yield per acre, and total product in bushels; also the acreage and product in 1892:

COUNTIES.	BUCKWHEAT, 1893.			FLAXSEED, 1893.			BUCKWHEAT, 1892.		FLAXSEED, 1892.	
	Acreage.	Yield Per Acre.	Product in Bushels.	Acreage.	Yield Per Acre.	Product in Bushels.	Acreage.	Product in Bushels.	Acreage.	Product in Bushels.
Adams	190	8	1,620	510	8	4,080	195	1,755	518	3,626
Allen	254	10	2,510	741	8	5,928	256	2,048	750	5,250
Bartholomew	41	16	656	12	6	72	40	640	11	66
Benton	106	20	2,120	638	8	5,104	109	2,180	614	4,508
Blackford	109	20	2,180	68	7	476	110	2,200	68	544
Boone	72	2	144	31	8	248	75	1 350	30	270
Brown	49	14	686	17	9	153	51	918	17	136
Carroll	74	16	1,184	190	6	1,140	70	1,120	186	930
Cass	116	25	2,900	220	5	1,100	115	920	217	1,302
Clark	21	10	210	8	..	20	20	200	9	90
Clay	47	9	423	55	9	505	49	784	57	399
Clinton	92	8	736	240	7	1,680	96	768	236	1,180
Crawford	7	12	84	10	7	70	6	72	7	49
Daviess	53	10	530	20	6	120	59	885	18	108
Dearborn	24	15	360	12	7	84	20	380	11	88
Decatur	12	10	120	11	10	110	11	110	10	60
Dekalb	225	11	2,475	26	9	234	220	3,300	25	225
Delaware	95	10	950	158	8	1,264	95	950	155	1,240
Dubois	13	10	130	17	6	102	12	120	16	96
Elkhart	380	8	3,040	31	7	217	390	3,900	30	210
Fayette	10	10	100	41	5	205	9	99	40	240
Floyd	...	...	10	6	60	...	...	...	12	84
Fountain	13	9	117	...		...	14	126	4	40
Franklin	71	8	568	17	8	136	69	690	18	162
Fulton	165	13	2,145	19	7	133	171	2,565	20	160
Gibson	10	10	100	10	10	100	9	99	12	120
Grant	149	15	2,235	840	8	6,720	146	2,628	856	6,848
Greene	94	9	846	12	10	120	91	637	14	154
Hamilton	80	20	1,600	51	10	510	82	2,050	55	550
Hancock	63	12	756	45	8	360	66	924	46	414
Harrison	...	...	...	...	...	...	...	...	...	...
Hendricks	20	12	240	...	...	...	21	273	...	
Henry	40	9	360	251	8	2,008	40	320	235	1,880
Howard	32	18	576	20	12	240	31	496	22	264
Huntington	160	10	1,600	1,060	4	4,240	159	1,431	1,090	7,630
Jackson	7	10	70	...	...	5	5	50	...	...
Jasper	375	12	3,300	...	...	...	281	3,372	...	...
Jay	310	15	4,650	355	10	3,550	315	4,410	360	1,440
Jefferson	17	14	238	...	...	...	16	240	...	...
Jennings	38	6	228	...	...	...	40	680	90	630
Johnson	13	10	130	...	...	...	12	84	...	...
Knox	10	15	150	...	...	...	9	180	...	...
Kosciusko	350	12	4,200	28	7	196	375	3,750	30	180
Lagrange	370	12	4,440	...	...	...	385	5,575	...	...
Lake	265	16	4,240	28	12	336	271	5,420	30	300

BUCKWHEAT AND FLAXSEED—Continued.

COUNTIES.	BUCKWHEAT, 1893.			FLAXSEED, 1893.			BUCKWHEAT, 1892.		FLAXSEED, 1892.	
	Acreage.	Yield Per Acre.	Product in Bushels.	Acreage.	Yield Per Acre.	Product in Bushels.	Acreage.	Product in Bushels.	Acreage.	Product in Bushels.
Laporte	540	18	9,720	138	9	1,242	596	11,920	140	1,120
Lawrence	7	10	70	. . . .	. .	. . . .	6	60	. . . .	. . . .
Madison	54	8	432	310	7	2,170	53	477	306	1,836
Marion	60	9	540	. . . .	. .	. . . .	62	868	. . . .	. . . .
Marshall	360	13	4,680	. . . .	. .	. . .	376	5,262	. . . .	. . . .
Martin	62	10	620	. . . .	. .	. . . .	61	640	. . . .	. . . .
Miami	58	30	1,740	476	10	4,760	57	741	480	4,320
Monroe	11	10	110	. . . .	. .	. . . .	16	160	. . . .	. . .
Montgomery	41	3	123	. . . .	. .	. . . .	39	585	. . .	. . . .
Morgan	27	40	1,080	. . . .	. .	. .	28	910	. . . .	. . . .
Newton	255	15	3,825	88	8	704	268	2,680	90	630
Noble	245	12	2,910	67	9	603	256	3,840	70	700
Ohio	5	10	50	. .	. .	. . . .	4	40	. . . .	. . . .
Orange	5	9	45	. . . .	. .	. . . .	4	52	. . . .	. . . .
Owen	40	12	480	. . . .	.	. .	38	342	. . . .	. . . .
Parke	29	15	435	. . .	. .	. . .	28	448	. . . .	. . . .
Perry	8	12	96	. . . .	. .	. . . .	7	98	. . . .	. . . .
Pike	9	10	90	. . .	. .	. . .	8	96	. . . .	. . . .
Porter	225	20	4,500	28	8	224	233	4,660	30	300
Posey	. . .	. . . .	. . .	. . . .	. .	. . . .	. . .	. . .	. . . .	. . . .
Pulaski	260	13	3,380	. .	. .	. . . .	270	2,970	. . . .	. . . .
Putnam	17	15	255	37	10	370	15	255	35	315
Randolph	110	8	880	1,185	8	9,480	103	1,648	1,190	7,140
Ripley	18	15	270	30	7	210	17	225	33	264
Rush	15	12	180	70	6	420	14	224	65	455
Scott	6	15	90	18	8	144	4	44	15	90
Shelby	25	9	225	81	10	810	24	192	80	720
Spencer	. .	.	.	. . . .	. .	. . .	. . . .	. . . .	. . .	. . . .
Starke	405	25	10,125	. . .	.	. . .	419	7,125	. . . .	. . . .
Steuben	276	10	2,760	. . . .	. .	. . . .	290	4,060	. . . .	. . .
St. Joseph	277	20	5,540	. . . .	. .	. .	294	8,526	. . . .	. . .
Sullivan	81	12	972	. . . .	. .	. . . .	79	1,027	. . . .	. . . .
Switzerland	19	10	190	. . . .	.	. . . .	18	180	. . . .	. . . .
Tippecanoe	76	6	456	.	. .	. . . .	73	657	. . . .	. . . .
Tipton	38	15	570	126	9	1,134	40	800	120	1,080
Union	28	10	280	51	5	255	31	279	45	315
Vanderburgh	. . .	. .	. . . .	110	8	880	. .		130	1,040
Vermillion	20	14	280	. .	. .	. . . .	21	252	. . . .	. . . .
Vigo	40	20	800	. . . .	.	. .	42	840	. . . .	. . . .
Wabash	115	21	2,415	876	15	13,140	119	2,975	890	14,240
Warren	20	8	160	30	7	210	22	176	32	256
Warrick	19	9	171	. . .	. .	. . . .	21	210	. . . .	. . . .
Washington	. . . .	.	. . . .	. . .	. .	. . .	. . .	. . . .	. . . .	. . .
Wayne	5,812	12	696	1,210	8	9,680	52	624	1,286	10,288
Wells	252	9	2,268	975	9	8,785	265	1,325	1,009	6,054
White	580	3	1,740	441	10	4,410	601	6,010	476	4,760
Whitley	117	9	1,053	310	9	2,790	121	968	317	2,536
Totals	9,456	1,264	109,524	12,461	8.1	100,934	9,612	129,762	12,788	98,467

CLOVER HAY.

THE YIELD BY COUNTIES.

Statement showing by counties the acreage sown in clover in 1893, the average yield per acre and product in tons; also the acreage and product in 1892.

COUNTIES.	Acreage in 1893.	Yield Per Acre in Tons.	Product in Tons, 1893.	Acreage in 1892.	Yield Per Acre in Tons.	Product in Tons, 1892.
Adams	13,360	2½	33,400	14,582	1¼	18,227
Allen	22,145	1¾	38,753	25,881	1¼	32,351
Bartholomew	10,580	1¾	18,515	11,418	1¾	19,983
Benton	3,469	1½	5,203	3,563	1	3,563
Blackford	2,540	2	5,080	2,780	1½	4,170
Boone	18,889	1¾	33,056	20,920	1½	31,380
Brown	870	1¼	1,087	875	1¼	1,094
Carroll	17,549	1¾	30,710	18,640	1½	27,960
Cass	15,450	2	30,900	16,562	1¾	28,983
Clark	4,102	1¾	7,178	4,200	1½	6,300
Clay	7,925	2	15,850	8,850	1½	13,275
Clinton	18,872	2	37,744	20,635	1¾	36,110
Crawford	2,107	2	4,214	2,183	1¾	3,819
Daviess	13,098	2	26,196	14,062	1¾	24,680
Dearborn	5,749	1½	8,623	5,833	1	5,833
Decatur	17,146	1½	25,719	18,234	1¾	31,910
Dekalb	15,148	1½	22,722	16,262	1½	24,393
Delaware	17,428	1½	26,142	18,583	2	37,166
Dubois	9,110	1½	13,665	9,714	2	19,428
Elkhart	24,328	1¼	30,410	26,718	1½	40,077
Fayette	13,140	1	13,140	14,521	1½	21,781
Floyd	2,109	2¾	5,799	2,087	1¾	3,652
Fountain	15,570	1	15,570	17,654	2	35,308
Franklin	13,048	1½	19,572	14,032	1½	21,048
Fulton	15,129	1½	22,693	16,575	2	33,150
Gibson	21,340	1¾	37,345	23,218	1½	34,827
Grant	16,140	1¾	28,245	17,742	1½	26,613
Greene	7,590	1¼	9,487	7,585	1½	11,377
Hamilton	19,740	1¾	34,545	21,644	1¾	32,466
Hancock	15,240	1¾	26,670	16,382	1½	24,573
Harrison	11,190	2½	27,975	12,238	2¼	27,535
Hendricks	16,120	1¾	26,210	17,052	2	34,104
Henry	22,760	1½	34,140	24,825	2	49,650
Howard	16,149	1½	24,223	17,216	2	34,432
Huntington	18,526	1¾	32,420	19,800	1½	29,700
Jackson	7,290	1¾	12,757	7,380	1½	11,070
Jasper	3,860	1	3,860	4,015	2	8,030
Jay	11,040	1½	17,460	12,832	1¾	22,456
Jefferson	1,529	1¾	7,925	4,672	1½	7,008
Jennings	5,410	1¼	6,762	5,718	1½	8,577

CLOVER HAY—Continued.

COUNTIES.	Acreage in 1893.	Yield Per Acre in Tons.	Product in Tons, 1893.	Acreage in 1892.	Yield Per Acre in Tons.	Product in Tons, 1892.
Johnson	13,076	1¾	22,883	14,010	1¼	17,512
Knox	16,320	2	32,640	17,685	2	32,370
Kosciusko	20,340	1¾	35,595	21,735	1½	32.602
Lagrange	22,296	1½	33,414	24.274	1¾	42,479
Lake	3,860	1½	5,790	3,938	1¾	6,891
Laporte	20,210	1½	30,315	21,465	1½	32,197
Lawrence	4,102	1¾	7,178	4,205	1¾	7,358
Madison	17,840	2	35,680	18,962	2	37,924
Marion	18,876	1½	28,314	20,016	1¾	35,028
Marshall	12,460	1½	27,690	20,349	1½	30,523
Martin	4.110	1	4,110	4,015	1¼	5,019
Miami	19,175	1¾	31,555	20,376	1½	30,564
Monroe	1,998	1¾	3,496	1,982	1½	2,973
Montgomery	19,120	1¾	33,460	20,942	1½	31,413
Morgan	8,510	1½	12,855	8,592	1½	12,888
Newton	2,940	¾	2,205	2,936	1	2,936
Noble	18,740	1¼	23,425	20,572	1½	30,858
Ohio	1,810	1½	2,715	1,817	1¾	3,176
Orange	3,140	1¾	5,495	3,052	1¾	5,341
Owen	6,119	1	6,119	6,517	1¼	8,146
Parke	9,810	1½	14,715	9,895	1¾	17,315
Perry	3,015	2¼	6,784	3,128	2	6,256
Pike	7,865	1¾	13.763	8,914	1½	13,371
Porter	11,291	1½	26,936	12,327	1¾	21,573
Posey	14,526	2½	36,315	15,872	2	31,744
Pulaski	7,239	1¼	9,048	7,585	1¾	13,273
Putnam	11,076	2	22,152	12,165	1¼	15,206
Randolph	23,584	1¾	41,272	25,714	1¾	44,995
Ripley	2,780	1¾	4,865	2,863	¾	2,147
Rush	21,146	1¾	37,005	22,718	1¾	39,756
Scott	1,890	3	5,670	1,962	2	3,924
Shelby	15,540	1¾	27,195	16,852	1½	25,278
Spencer	10,562	1½	15,843	11.445	1¼	14,306
Starke	2,780	1¾	4,865	2.817	2	5,634
Steuben	17,240	1¾	30,170	18,943	1½	28,414
St. Joseph	21,160	1½	31,740	22,716	1	22,716
Sullivan	16,240	2	32,480	17,822	2	35,644
Switzerland	3,219	1¾	5,634	3,416	1¾	5,978
Tippecanoe	11,565	1½	17,347	12,992	1½	19,488
Tipton	9,329	1½	13,993	10,483	1¼	13,104
Union	8,110	1¾	14.192	8,915	2	17,830
Vanderburgh	6,840	1¾	11,970	7,262	1¾	12,708
Vermillion	6,140	1¼	7,675	6.843	1¾	11.975
Vigo	9,142	1¼	11,427	9,712	1¼	12,140
Wabash	24,327	1½	36,490	26,475	1¾	46,331
Warren	4,460	1¼	5,575	4.552	1½	6,828
Warrick	9,360	1½	14,040	10,584	1¾	18,522
Washington	3,790	2	7,580	3,814	1½	5,721
Wayne	21,590	1½	32,385	23,672	2	47,344
Wells	13,129	1¾	22,975	14,216	1¾	24,878
White	6,240	1	6,240	6,741	2	13,482
Whitley	14,740	1	14,740	15,804	1½	23,706
Totals	1,087,132	1.65	1,793,268	1,174,341	1.62	1,910,852

TIMOTHY HAY.

THE YIELD BY COUNTIES.

Statement showing, by counties, the acreage sown in timothy in 1893, the yield per acre, and total product in tons; also the acreage and product in 1892:

COUNTIES.	Acreage in 1893.	Yield per Acre.	Product in Tons, 1893.	Acreage in 1892.	Yield per Acre.	Product in Tons, 1892.
Adams	11,640	1¾	20,370	12,732	1¼	15,915
Allen	17,780	1¾	31,115	19,683	1½	29,524
Bartholomew	14,210	1¼	17,762	15,362	1¼	19,202
Benton	20,960	1¼	26,200	22,837	1¼	28,546
Blackford	6,140	1½	9,210	6,847	1½	10,270
Boone	10,141	1¾	17,746	10,863	2	21,726
Brown	13,210	1	13,210	14,932	1	14,932
Carroll	7,162	1½	10,743	7,648	1½	14,472
Cass	8,974	1¾	15,704	9,473	1¾	16,578
Clark	13,364	1½	20,046	14,810	1¼	18,513
Clay	21,149	1½	31,723	22,356	1½	33,534
Clinton	10,292	1½	15,438	11,812	1¾	20,671
Crawford	8,690	1¼	10,862	9,452	1¾	16,541
Daviess	11,160	1¼	13,950	12,217	1¾	21,379
Dearborn	20,240	1¼	25,300	21,392	1	21,392
Decatur	13,160	1¼	16,450	14,305	1½	21,457
Dekalb	9,031	1½	13,546	9,963	1¾	17,435
Delaware	13,219	1¼	16,524	14,748	1¾	25,809
Dubois	10,120	1¼	12,650	11,216	1¾	19,628
Elkhart	10,370	1½	15,555	11,862	1½	17,793
Fayette	7,220	1¼	9,025	7,915	1¼	9,895
Floyd	6,249	1¼	7,811	6,823	1¼	8,529
Fountain	12,140	1¼	15,175	13,513	2	27,026
Franklin	12,290	1½	18,435	13,725	1¼	17,156
Fulton	5,319	1¾	9,307	5,418	2	10,836
Gibson	9,190	1½	13,785	9,782	1½	14,673
Grant	12,316	1½	18,474	13,863	1½	20,794
Greene	20,862	1	20,862	22,914	1¼	28,643
Hamilton	10,880	1¼	13,600	11,947	1¾	20,906
Hancock	8,240	1½	12,360	8,771	1½	13,156
Harrison	10,390	1¾	18,182	11,476	1½	17,214
Hendricks	11,216	1½	16,824	12,621	1¾	22,086
Henry	9,240	1¾	16,170	9,784	1½	14,676
Howard	7,291	1½	10,936	7,861	2	15,722
Huntington	11,166	1¾	19,540	12,227	1½	18,340
Jackson	17,128	1¼	21,410	18,881	1¼	23,601
Jasper	22,160	1½	33,240	24,221	1½	36,331
Jay	16,210	1	16,210	17,375	1¼	21,719
Jefferson	13,120	1	13,120	14,397	1	14,397
Jennings	20,060	1	20,060	21,144	1¼	26,430

TIMOTHY HAY—Continued.

COUNTIES.	Acreage in 1893.	Yield per Acre.	Product in Tons, 1893.	Acreage in 1892.	Yield per Acre.	Product in Tons, 1892.
Johnson	12,094	1¾	21,164	13,052	2	26,104
Knox	9,460	1½	14,190	10,281	1½	15,421
Kosciusko	7,264	2	14,528	7,921	1¾	13,861
Lagrange	6,940	1¾	12,145	7,118	1¾	12,456
Lake	25,410	1¼	31,762	27,352	1¾	47,866
Laporte	11,960	1½	17,940	12,841	1½	19,261
Lawrence	15,872	. .	15,872	16,924	1¼	21,155
Madison	9,128	1½	13,692	9,746	1¾	17,055
Marion	19,162	1	19,162	20,254	1¾	35,444
Marshall	7,110	1¾	12,442	7,018	1¾	12,281
Martin	9,480	1	9,480	10,382	1	10,382
Miami	9,176	1¾	16,058	9,471	2	18,942
Monroe	13,698	1¾	23,971	14,721	1½	22,081
Montgomery	14,312	1½	21,468	15,410	2	30,820
Morgan	11,570	1¼	14,462	12,637	1¾	22,114
Newton	17,210	1	17,210	16,827	1¼	21,034
Noble	7,340	1½	11,010	7,203	1½	10,805
Ohio	6,421	1	6,421	6,942	1½	10,413
Orange	12,210	1¼	15,262	13,385	1½	20,077
Owen	20,364	1	20,364	21,431	1¼	26,789
Parke	1,014	1½	15,211	10.872	1¾	19,026
Perry	8.896	1½	13,340	9.315	1¼	11,644
Pike	9,128	1½	13,692	10,022	1½	15,033
Porter	20,296	1½	30,410	21,891	1½	32,836
Posey	9,310	1½	13,515	9,207	1½	13,810
Pulaski	5,121	1¼	6,401	5.718	1½	8,577
Putnam	17,360	1¼	21,700	18,515	1¾	32,400
Randolph	15,263	1¼	19,079	16,321	1½	24,481
Ripley	24,640	1¼	30,800	26,515	1	26,515
Rush	9,740	1½	14,610	9,881	1½	14,821
Scott	6,290	1½	9,435	6.573	1	6,573
Shelby	9,176	1½	13,764	9,085	1½	13,627
Spencer	10,790	1¼	13.487	11,843	1¾	20,725
Starke	1,946	1¼	2,433	2,018	2	4.036
Steuben	6,740	1½	10,110	6,925	1½	10,387
St. Joseph	7,740	1¼	9,675	7,882	1½	11,823
Sullivan	15,625	1½	23,437	16,561	1¾	28,981
Switzerland	14,792	1	14,792	15,828	1	15,828
Tippecanoe	15,540	1¼	19,425	16.481	1¼	20,601
Tipton	9,040	1½	13,560	9,247	1¼	11,559
Union	4,060	1¾	7,105	4,238	1¾	7,416
Vanderburgh	10,120	1½	15.280	10,382	1¼	12,977
Vermillion	8,020	1	8,020	8,358	1½	12,537
Vigo	17,120	1	17,120	18,208	1	18,208
Wabash	11,960	1½	17,940	12,812	2	25,624
Warren	9,170	1¼	11,462	9,764	1¼	12,205
Warrick	11,290	1½	16.935	12,393	1¾	21,687
Washington	24,460	1¼	30,575	26,381	1	26,381
Wayne	18,540	1¼	23,175	19,658	1½	29,487
Wells	14,620	1¾	25.585	15,570	1¾	27,248
White	20,740	1½	31,110	22.614	1¾	39.574
Whitley	8,530	1½	12,795	8,728	1½	13,092
Totals	1,128,764	1.41	1,580,269	1,209,890	1.5	1,814,835

IRISH AND SWEET POTATOES.

THE YIELD BY COUNTIES.

Statement showing by counties the acreage planted in Irish and Sweet Potatoes in 1893, the yield per acre, and product in bushels; also the acreage and product in 1892.

COUNTIES.	Irish Potatoes, 1893.			Sweet Potatoes, 1893.			Irish Potatoes, 1892.		Sweet Potatoes, '92	
	Acreage.	Yield Per Acre.	Product in Bushels.	Acreage.	Yield Per Acre.	Product in Bushels.	Acreage.	Product in Bushels.	Acreage.	Product in Bushels.
Adams	920	29	27,680	34	20	680	834	25,854	33	2,475
Allen	4,160	46	191,360	53	35	1,855	4,093	77,767	52	1,872
Bartholomew	510	50	25,500	27	66	1,782	472	26,904	25	1,625
Benton	740	43	31,820	12	50	600	680	32,640	10	300
Blackford	825	35	28,875	21	40	840	712	22,784	20	800
Boone	1,030	26	26,780	27	32	764	972	53,460	26	390
Brown	740	33	24,420	17	25	425	650	19,500	15	600
Carroll	820	20	16,400	62	20	1,240	711	25,596	60	5,220
Cass	1,460	40	58,400	51	30	1,530	1,404	80,028	50	900
Clark	690	60	41,400	32	55	1,760	515	49,945	33	4,455
Clay	625	56	35,000	70	17	1,190	586	21,096	72	1,440
Clinton	590	38	22,420	26	37	1,482	500	22,500	24	1,200
Crawford	270	54	14,580	28	61	1,708	210	14,280	27	3,267
Daviess	490	37	18,130	31	30	920	330	15,180	30	1,440
Dearborn	1,725	42	72,450	52	25	1,300	1,722	58,548	56	1,120
Decatur	424	38	16,112	31	30	930	316	18,644	30	900
Dekalb	1,290	63	81,270	22	31	682	1,184	39,072	20	1,000
Delaware	1,470	29	42,630	51	10	510	1,220	48,800	53	2,491
Dubois	920	49	45,080	34	60	2,040	879	61,530	32	1,760
Elkhart	2,025	43	87,075	52	28	1,456	1,914	95,700	55	3,300
Fayette	410	75	30,750	32	100	3,200	361	31,407	31	3,100
Floyd	940	41	38,540	36	60	2,160	864	56,160	35	3,150
Fountain	520	27	14,040	23	100	2,300	401	31,679	22	4,114
Franklin	1,090	50	54,500	19	50	950	1,020	54,060	17	629
Fulton	1,012	23	33,396	16	50	800	944	33,040	14	420
Gibson	670	100	67,000	31	100	3,100	511	39,858	31	2,945
Grant	1,050	41	43,050	34	30	1,020	900	33,300	30	1,200
Greene	692	71	49,132	61	30	1,830	614	36,840	60	2,400
Hamilton	1,221	22	26,862	46	63	2,898	1,122	38,148	44	2,244
Hancock	690	24	16,560	29	29	841	516	24,252	27	2,322
Harrison	1,313	50	65,650	22	47	1,034	1,272	54,696	20	1,560
Hendricks	1,169	41	47,929	28	49	1,372	1,087	80,438	26	1,170
Henry	870	51	44,370	42	38	1,596	796	50,148	40	2,560
Howard	1,038	53	53,976	41	40	1,640	901	45,050	40	2,320
Huntington	1,321	41	54,161	30	40	1,200	1,214	31,564	31	1,550
Jackson	690	43	29,670	21	38	798	544	20,128	19	760
Jasper	710	63	44,730	27	150	4,050	611	55,601	28	1,960
Jay	1,040	32	33,280	32	62	1,984	982	25,532	31	2,635
Jefferson	1,030	65	66,950	52	105	5,460	916	67,784	49	6,958
Jennings	495	47	23,265	33	40	1,320	430	35,690	31	1,891
Johnson	410	43	17,630	26	28	728	318	13,674	22	616
Knox	960	39	37,440	86	87	7,482	844	86,088	87	9,396
Kosciusko	1,321	36	47,556	34	40	1,360	1,272	45,792	36	1,800
Lagrange	1,490	45	67,050	17	20	340	1,542	78,642	16	640
Lake	1,996	40	79,840	31	28	868	1,986	123,132	30	1,350

POTATOES—Continued.

COUNTIES.	Irish Potatoes, 1893.			Sweet Potatoes, 1893.			Irish Potatoes, 1892.		Sweet Potatoes, '92	
	Acreage.	Yield Per Acre.	Product in Bushels.	Acreage.	Yield Per Acre.	Product in Bushels.	Acreage.	Product in Bushels.	Acreage.	Product in Bushels.
Laporte	2,260	46	103,960	44	27	1,188	2,184	98,280	42	1,260
Lawrence	501	36	18,036	19	33	627	416	14,580	18	900
Madison	810	31	25,110	40	30	1,200	607	36,420	36	4,428
Marion	4,610	28	129,880	320	37	11,840	4,596	211.416	327	13,080
Marshall	1,290	33	42,570	24	60	1,440	1,217	58,416	22	440
Martin	420	60	25,200	16	52	832	380	22,230	14	518
Miami	1,160	30	34,800	69	31	2,139	1,087	40,219	67	2,680
Monroe	560	56	31,360	32	65	2,080	501	32,864	30	2,160
Montgomery	710	48	34,080	29	60	1,740	616	59,136	25	2.025
Morgan	680	50	34,000	26	20	521	590	31,860	20	1,760
Newton	590	54	31,860	17	30	510	500	31,000	18	1,080
Noble	780	31	24,180	17	31	527	980	43,120	13	390
Ohio	740	67	27.380	18	30	540	716	19,332	16	1,408
Orange	391	50	19,500	21	46	266	319	15,312	19	1,102
Owen	510	66	33,660	27	29	783	462	30,492	25	1,275
Parke	621	40	24,840	20	40	800	586	38,676	18	900
Perry	1,040	70	72,800	25	30	750	1,023	67,518	24	912
Pike	725	80	58.000	29	57	1,539	684	60,192	26	2.600
Porter	1,610	49	78,890	37	30	1,110	1,507	55,759	38	1.900
Posey	960	68	65,280	28	82	2,296	894	50,064	20	1,600
Pulaski	991	24	23,784	30	18	540	922	38,724	31	930
Putnam	740	40	29,600	41	62	2,542	646	45,220	39	2,067
Randolph	861	44	37,884	46	97	4.462	760	30,400	44	1,320
Ripley	790	36	28,440	20	50	1.000	744	51,336	18	1,800
Rush	810	40	32,400	29	50	1,450	716	43,676	25	1,475
Scott	590	35	20,650	15	60	900	540	13.500	14	700
Shelby	771	40	30,840	26	28	728	690	41,480	21	2,772
Spencer	2,276	46	104,696	74	46	8,404	2,324	146,412	75	5,850
Starke	410	37	15,170	31	75	1,850	386	19,300	30	1,500
Steuben	801	57	45,657	32	28	896	704	25,344	33	1,320
St. Joseph	2,192	44	96,448	120	20	3,600	2,076	116.256	116	5,800
Sullivan	695	52	36,140	33	30	990	616	17,248	32	800
Switzerland	1,901	35	66,535	32	350	11,200	1,841	49,707	31	1,550
Tippecanoe	1,698	72	122.256	52	50	2,600	1,595	127,600	44	4,972
Tipton	550	40	22,000	19	30	570	494	19,760	18	1,260
Union	496	53	26,288	14	60	840	461	27,660	11	748
Vanderburgh	1,930	70	134,100	82	78	6,786	1,842	12,849	72	6,336
Vermillion	460	70	32.200	31	80	2,480	400	18,200	30	1,800
Vigo	1,620	41	66,420	192	40	7,680	1,533	58,254	186	5,580
Wabash	920	40	36,800	24	50	1,200	816	40,800	17	1,275
Warren	492	30	14,760	22	28	616	407	32,560	21	1.050
Warrick	1,410	43	60,630	96	46	4,416	1,385	76.175	94	7,050
Washington	530	75	39,750	21	208	4,368	471	31,086	19	1,710
Wayne	1,160	34	39,440	102	52	5,304	1,042	49,996	98	4,803
Wells	1,020	30	30,600	35	33	1,155	968	34.818	36	1,440
White	690	16	11,040	26	25	650	618	39,552	24	1,560
Whitley	998	20	19,960	23	30	690	936	27,144	22	990
Totals	94,642	44.2	4,172,166	3,616	56	202,496	87,670	4,620,647	3,569	217,709

TOBACCO.

THE YIELD BY COUNTIES.

Statement showing by counties the acreage planted in tobacco in 1893, the yield per acre, and total product in pounds; also the acreage and products in 1892.

COUNTIES.	Acreage in 1893.	Yield per Acre, Pounds	Product in Pounds, 1893.	Acreage in 1892.	Product in Pounds, 1892.
Adams					
Allen					
Bartholomew	36	40	1,440	27	10,800
Benton					
Blackford					
Boone					
Brown	206	200	41,200	216	388,800
Carroll					
Cass					
Clark	90	500	45,000	95	45,125
Clay					
Clinton	10	200	2,000	13	6,500
Crawford	24	1,100	26,400	27	14,715
Daviess	106	1,150	121,900	116	52,200
Dearborn	103	1,150	118,450	133	63,175
Decatur					
Dekalb					
Delaware					
Dubois	1,094	800	875,200	1,185	1,362,750
Elkhart					
Fayette					
Floyd	20	400	8,000	30	14,250
Fountain					
Franklin					
Fulton					
Gibson	90	600	54,000	100	50,000
Grant				14	6,300
Greene	101	800	80,800	106	74,200
Hamilton					
Hancock					
Harrison	27	1,950	52,650	37	37,000
Hendricks					
Henry	10	600	6,000	11	7,150
Howard					
Huntington					
Jackson					
Jasper					
Jay					
Jefferson	605	800	484,000	615	430,500
Jennings	20	500	10,000	30	15,000

TOBACCO—Continued.

COUNTIES.	Acreage in 1893.	Yield per Acre. Pounds	Product in Pounds, 1893.	Acreage in 1892.	Product in Pounds, 1892.
Johnson				184	87,400
Knox					
Kosciusko					
Lagrange					
Lake					
Laporte					
Lawrence	25	1,000	25,000	27	13,560
Madison					
Marion	30	200	6,000	35	15,750
Marshall					
Martin	17	500	8,500	19	7,600
Miami					
Monroe	16	550	8,800	18	22,500
Montgomery	20	400	8,000	22	15,400
Morgan					
Newton					
Noble					
Ohio	125	500	62,500	130	71,500
Orange	45	1,000	45,000	47	37,600
Owen	51	800	40,800	53	37,100
Parke	10	600	6,000	16	9,600
Perry	181	800	141,800	196	143,668
Pike	650	500	325,000	697	487,900
Porter					
Posey					
Pulaski					
Putnam	12	300	3,600	13	5,200
Randolph	60	883	52,980	63	37,800
Ripley	20	600	12,000	24	19,200
Rush					
Scott	10	500	5,000	12	16,800
Shelby	35	1,000	35,000	40	40,000
Spencer	3,180	667	2,121,060	3,287	2,365,250
Starke					
Steuben					
St. Joseph					
Sullivan	28	500	14,000	30	24,000
Switzerland	1,480	950	1,406,000	1,496	1,395,768
Tippecanoe					
Tipton					
Union					
Vanderburgh	30	700	21,000	31	15,500
Vermillion					
Vigo	15	600	9,000	16	7,200
Wabash	20	900	18,000	29	34,800
Warren					
Warrick	3,870	987	2,929,590	4,076	3,260,800
Washington	70	640	44,800	73	54,750
Wayne	180	600	108,000	185	268,250
Wells					
White					
Whitley					
Totals	12,722	680	8,650,960	13,574	11,074,211

Indiana Shorthorn Breeders' Association.

Meeting called to order at 2 o'clock P. M. January 2, 1894, in room 11, State House, Hon. James M. Sankey presiding.

Mr. Sankey. I did not take much pains in preparing an address, as I did not have an opportunity last year when I did take pains, and I did not know whether I would get a chance this time. However, I have a few remarks I will submit to you, and therefore beg your indulgence.

PRESIDENT'S ADDRESS.

Gentlemen of the Shorthorn Breeders' Association of Indiana:

Again we have assembled in the capacity of breeders to discuss that which interests us as stock breeders, and in a financial way, and to spend a social hour together.

In discussing our individual interests we are certainly discussing the interests of the State, and when talking of the interests of our State we necessarily talk about that which interests all the States, then it is to be hoped that our coming together will result in something more than the benefits and pleasures of the social hour. The social pleasures derived from our gathering together at our annual meetings can hardly be estimated, but can we not do something that will be of practical benefit to us as breeders? Can not something be evolved here that we can take home with us and reduce to practice whereby we may be individually and collectively bettered, and thereby the interests of the community in which we reside be profited and consequently the whole State.

I do not wish to disparage the social features of our organization, but I submit that a great many do not care to incur the expense of a trip to the capital city of our State simply to have a good time, while none, perhaps, object to a little fun, yet most of us want to gain a sufficient amount of knowledge to justify the expense of the trip.

Take the new breeder, the beginner; he comes to our meetings, he has made an investment in Shorthorn cattle, and comes here to hear men of age and experience tell how they manage their herds; how they have made the rearing of Shorthorn cattle a success. He reads in some of the stock journals where Mr. A or Mr. B paid almost a fabulous price for a Shorthorn, but he fails to note where Mr. B ever sold any of the progeny for anything like what he gave for his original purchase. He wonders why it is, if the breed is deteriorating, if it is in the management of the herd, if it was in the keeper, if it was in the water, if it was in the food or shelter, or handling, or what is it. These are questions that this organization ought to answer to the new beginner, if there is one here. I doubt not but what there are those here who have been engaged in the business for years who would like to hear some, if not all, these questions discussed. We read in the papers about Christmas cattle selling in Chicago for $6.35 per cwt., and in the same column about butchers' cattle selling for $2 00 per cwt. Here is quite a discrepancy, but who can tell the net cost of each hundred pounds? When export cattle are selling at $5.00 per cwt. and Christmas cattle at $6.00 per cwt, which is the more profitable for farmers to raise?

When a young farmer starts to raising Shorthorns, would it be better for him to pay $100 for a Young Phillis or a Young Mary, or $200 for a Duchess or a Craggs, or, in other words, had he better pay twice as much for a so-called fashionably bred animal than half as much for an unfashionably bred animal, taking it for granted that both are good individuals, equally good specimens of their respective families?

The Columbian show has come and gone, and certainly the breeders of the "red, white and roan" have nothing to regret, and we Hoosiers are justly proud that the highest honors in the beef ring were awarded to Indiana, and our Secretary, Mr. Robbins, is the owner of the champion herd of the world.

Mrs. Meredith will tell you what our "Favorites did at the World's Fair" in a more detailed manner than I possibly could do, and Mr. Sanders will recite some of the lessons learned at the cattle show of the Columbian Exposition. And, finally, a pioneer in the Shorthorn will tell you what twenty years' observation and experience has taught him, our own Governor Matthews.

With the close of this meeting will end my official connection with this Society. I can not close without thanking you for the honors conferred. During the last three years I have often felt proud of being President of the Shorthorn Breeders' Association of Indiana. Again thanking you, let me bespeak you for my successor in office the many kindnesses bestowed upon me.

Chair. Is there any one present who would like to become a member of this Association? If there is, this would be a good time for them to embrace the opportunity. All you have to do is to sign the by-laws. The dues are $1 a year.

This request brought out a number of additions to the membership.

OUR INTERESTS AT FAIRS.

JAS. D. WILLIAMS, POND CREEK MILLS, IND.

It is with great pleasure I meet with you to-day, as breeders of Shorthorn cattle, to applaud the success which they rightly deserved and have rightly maintained during the past show season; and, grandest of all, the victory, to which we can ever point with pride, achieved at the great Columbian. We can again loudly proclaim that the Shorthorns are not a breed of the past, but have come to stay.

It is thus inspired, my friends, that I answer the call to make a *few* remarks on "Our Interests at the Fairs."

We need not try to further introduce the Shorthorns at our fairs to be rewarded, for already there is almost always four to one of any other breed; but we should ask that we be remunerated for the exhibition our breed makes, in at least *pro rata* with other exhibitions made of no more value, and nothing near the expense attached.

My remarks shall not be directed to you hoping to advance any new theory as to breeding, but for your approval or rejection as to bringing our claims before the boards of our fairs in this State.

It has been said of our fairs that they were fair in name only, and not so in making the awards. I do assert that the majority of them are not fair in the awards offered, as a glance at our premium list of last year's State Fair will show. If we are to have an Agricultural Society, let us stand together as representatives of that class, and protest against making race meetings of our fairs.

While I accord the right and deem it proper for the members of the boards to offer due encouragement to the speed ring, yet I do not acquiesce in giving one-thousand-dollar purses for each class of trotters and pacers, and then offer a sixty-dollar prize for a herd of cattle that costs five times as much to carry from fair to fair as it does a horse. It has been said: "O consistency! thou art a jewel"; but well might we say, "O conspiracy! thou art a devil."

Our agricultural societies were not created for the purpose of building up the race-course to the exclusion of other pursuits and industries more elevating and exhilarating, but for the advancement morally, socially and financially of the agricultural interests of our State. To that end, then, my brethren, let us petition the State Board, now in session, to grant us a hearing on the revision of this year's list of premiums.

If purses to the extent of $1,000 be given for each class in the speed ring to the extent of six or eight different classes, we can surely ask, and conscientiously, too, that $1,000 be set apart for the payment of beef-herd prizes. We are, and ever have been, I believe, ready and willing to meet any and all beef breeds in a grand sweepstake herd ring, and do not ask that we have a class-herd prize, nor do we think that any other class ought to have.

We should be ready to meet them at any time and demonstrate to the farmers of this country that the Shorthorns are entitled to the position which they have so successfully won. We can, by such concerted effort as put forth by other organizations, come off more than conqueror of all other breeds. We should encourage fewer cattle kept, better quality, and, last of all, better feeding.

How can we do this? By offering such inducements as will tend to draw such farmers into the show ring as even breed a good type of grade cattle. I must confess I was somewhat amused at the resolution recently adopted by the Iowa breeders, wherein they deprecated the awarding of prizes to cattle that "carry so much flesh that their breeding is impaired." They further asked that prizes be given for cattle that I presume they consider in breeding condition, (such as the farmers usually keep), and to offer prizes for fat steers. It seems to me, or at least it is the case in this State, that there is already inducement enough for too much *under-feeding;* rather than ask our State Board to still increase it.

I consider it better to heed Mr. Cotton's advice given in his paper here last year, where he says feed, feed, feed all the time.

If we, as breeders of beef-producing cattle, desire to prove to our people that we have that kind, the best and only conclusive evidence in my mind is to see our herds in that condition. We should not, in these days of low prices, confine ourselves solely to the study of breeding, to produce that type of cattle that command the highest prices, but let breeding and feeding go hand in hand.

It is as erroneous to try to succeed as a breeder without feeding as feeding without breeding. I would not, for a moment, consider the purchase of an animal simply because of pure blood, were there nothing else to prove its feeding quality. I used to try feeding without breeding, then breeding without feeding, but finally I resolved I would breed and feed also. For, in either case, I almost concluded I was as bad as a lawyer I once heard of. He was taken very ill, and thinking he was going to die, he had his two partners summoned to him. Thinking of nothing except for a legal purpose, they inquired as to the sick man's wants, when, to their surprise, he bade them be seated either side of him. Following he told them that he had wronged his profession, that he had repented and wanted to die as near like Christ as possible, and that He died between two thieves, and for this reason had summoned them to either side of him. I made up my mind, my friends, that I, in either channel, was abusive of the calling, and was trying to steal the laurels due those that had proven their title as breeders by being feeders as well.

I concur with our Iowa brethren as to giving prizes for best fatted steers, and think we should solicit our fairs to offer such awards as to justify the farmers in fitting steers for the show ring. I go farther, by saying that, as an association of the great State of Indiana, we should, by way of prizes, instigate the farmers of this State to fit and compete for the fat stock prizes given annually at Chicago.

The laurels won by our State as a beef-producing one, at the recent Columbian Exposition, should so incite us that we try to crown this victory by offering prizes to any Shorthorn breeder, or Shorthorn-grade breeder, who fits and successfully wins any of those awards. There is no reason why we can not divide this honor with our sister State, if we will but give some encouragement to our farmers. It will not only be an honor to our organization, but will benefit us in our sales, as well. For when we can create a rivalry between them as to who can feed the best, we then establish a better demand for better bulls. A breeder also can afford to sacrifice in the price of an animal to one whom he knows to be a good feeder, but a poor feeder, as a customer, does you or I very little good in advertising our type of cattle in any locality. I do not desire to use your time in mapping out or prearranging any fat stock classes to present to our State Board and other Fairs, but leave this in your hands. But, in conclusion, I wish to say to our farmers, that the past year's show rings have demonstrated to the people of this country that the Shorthorns are not only a beef-breed of cattle, but are the *only* general purpose cattle on earth. Then, brother farmers, if you wish to be with the band-wagon and in the procession, dispose of your scrubs, buy you a Shorthorn, fit it for the show ring, and prove to your brethren that you have reformed, and are going to be of some use to your country.

DISCUSSION.

Chair. You have heard the paper just read. If there is any one who has a criticism, eulogy, or any question to ask, we will be glad to hear from him. I would be glad to hear from any one who feels like saying anything. There are some very good thoughts in Mr. Williams' paper that need discussing.

Mr. Cotton. That part of the paper about racing strikes me. I think larger premiums should be awarded to the cattle men than to fast trotters. There is too much discrepancy in the premiums. The farmers of the State of Indiana should have their interests more encouraged in raising good cattle than is given to the breeders of trotting horses. I have been an exhibitor of cattle for some time, and know what it is to ship. It is work, WORK, WORK, from the time you start out until you get back; but how little successful you are if you get what premiums are awarded you, compared with the premiums on trotting horses. This matter is well worth considering, and should be given a little better showing in the future than it has been in the past.

Mr. Robbins. I am a cattle man, hog man and sheep man, and I have some trotting horses. Trotting horses are a necessary evil, and I think deserve their share of attention. I cannot solve the mystery of why the trotting men get along so well. At the fairs they are given the best stalls for their horses, and are well taken care of; but should a cattle man come along for stalls, he is left to get along the best he can. Then the large prizes are awarded to the trotters and the small ones to the cattle. The trotting men have a good deal of money. Then they are better schemers than the Shorthorn men. We do not know how to scheme. While I do not ignore the trotters, I think it is time for us to rise and say something on this subject. I think every farmer should produce Shorthorns, as it is that much wealth to the owner.

Mr. McDonald. I am a Shorthorn breeder; also a fast horse breeder. I belong on both sides of the fence. While the gentleman's remarks coincide with my views in some cases, yet I think the State Board of Agriculture is free from the charge that they do not furnish good stalls in good condition for the cattle. I am sure that the fast horses, or any of the horses, are no better accommodated or cared for than the cattle on exhibition at our State Fair. I think that the premiums offered for Shorthorn exhibits, and, in fact, all cattle exhibits, are entirely too low. But larger crowds will attend fairs by having fast horses than anything else. That is because we make money out of it. So does the State Fair. At the last Fair there was nearly four thousand dollars received by the horses. The grand stand was nearly two thousand dollars more, making in all about six thousand dollars from the horsemen alone. But the State Fair is not for the trotting horses alone. We have a meeting in this State where we have nothing but fast horses, and the receipts of this meeting are larger than the State Fair. The Trotting Association at Terre Haute depends entirely on its fast horses. It has nothing else connected with it. It makes more money and gives a better exhibition than our State Fair.

The reason is that they manage it properly and pay out a great deal larger purses They paid in three purses $32,000, two purses of $11,000 each, and one purse of $10,000.

Mr. Robbins. I would like to ask Mr. McDonald how the races panned out in Indianapolis.

Mr. McDonald. I do not believe any race will ever pan out well if it is not properly managed, no matter where it is held, and is managed by reputable men. When people lose confidence it is hard to get it back again.

Mr. Robbins. I know of cases where money was lost in giving races alone.

Mr. McDonald. I said fast horses will always pay by themselves, but for a better exhibition there should be a combination of trotting horses and shorthorn cattle. Not racing alone or a fat cattle show alone, but both combined.

Mr. Phillips. I think we should have speed horses at the Fair. A great mistake was made in not having them there on the great Chicago day.

Mr. Gorman. I live between Laporte and South Bend, and belong to and am a stockholder in the Fair Association. We offer special prizes on all kinds of cattle. We had a three days' show this year. I say you can not run a fair profitably without trotting.

Mr. Williams. I did not aim to bring out a discussion about racing in my paper. We have in the Knox County Fair good racing, good horses and good time, taking into consideration that we only get from $300 to $500 purses, and our races have been from 2:12½ to 2:18 and 2:20. But the point is not in that alone. The shorthorn cattle mean more to us, and we should try to make them the specialty. I think feeding properly the great question among the farmers. It is just as important as breeding, and by getting a good grade would enhance the values.

Mr. Strange. As for this association being able to contribute anything for premiums for exhibits, I do not think it is. This association is for the benefit of the shorthorn breeders. I believe we want to make a school out of it, and we tell how we have done certain things and why we have done it. Then the animal is the proof of our work.

WHAT CONSTITUTES A MODEL SHORTHORN DAIRY COW.

PHILIP F. NYE.

Throughout the history of the bovine race human effort for their development and improvement has been directed chiefly toward two quite distinct purposes, one the production of beef, the other the production of dairy products, both as food for mankind, with numerous attending by-products of more or less domestic or commercial value, as horns, hair, hide, blood, tallow, skim milk, etc.; whence has resulted great families or breeds, differing widely in distinctive characteristics with the preponderance of one or the other of these purposes in their development.

Moreover, dairy products subdivide into butter for universal use. Cheese for quite general consumption. Milk in great quantity for use in cities and towns, and milk, butter and cheese for use in rural homes and retail trade throughout almost the entire world. and efforts for adaptation to these varied requirements, further multiply breeds, so that we have the Jersey, of unrivaled excellence as a producer of rich cream and fine quality of butter, but developed with no reference to avoirdupois, unless, perhaps to diminutiveness; and her opposite, the massive Hereford, immense upon the block, but barely competent, often incompetent, to properly foster her offspring; the Ayrshires, yielding an abundance of milk, rich in caseine, but light feeders and of little value for beef; the Holstein, of great merit as dairy stock, but presenting a roughness of contour, not inspiring the thought of a thing of beauty, which is a joy forever, nor indicative of easy keep and good feeding qualities; the Devon, remarkable for uniformity and beauty; the Polled breeds, creditable animals, chiefly prized as being polled; like sheep, having no horns, they herd together and gore one another not at all, and so on, approaching a climax of excellence with the breed of breeds. The matchless, towering shorthorns, concerning which the question propounded by your secretary as the subject of this paper, combining in a remarkable degree the meritorious qualities eagerly sought and laboriously cultivated in all other breeds.

Observe, also, that while a great number of cows are employed in the large dairies, which supply cities and towns and large numbers in dairies for the manufacture of cheese, in each of which quantity is the desideratum, and the production of beef cuts small figure, and large numbers are employed in butter dairies, where quantity and quality are both equally important, but not beef production. Very many more than for all other purposes combined are distributed throughout the civilized world in small herds or singly, and are valuable in proportion to quality and quantity of their milk and their character as feeders and for beef, and it is with reference more especially to this greatest field of usefulness, we think, our model for a dairy cow should be constructed.

In the early history of the Shorthorns, as is well known, great care and pains were taken to develop their dairy qualities, so that Shorthorn cow meant very perfect dairy cow. Had the same practice obtained until the present time, an answer to the question submitted could be given in a single expression, viz.: A pure-bred representative Shorthorn cow, between the ages of five and twelve or fifteen years; but while the model dairy Shorthorn should be in good flesh, the strain upon animal substance of superior dairy performance is incompatible with that high condition necessary for the show ring, and to capture the eye of purchasing customers of thoroughbred stock, and it must be admitted that modern breeders have largely ignored the wisdom of the earlier practice, and breeding for flesh and precocity, have produced what are called beef families, to distinguish from what are known as milking families of Shorthorns; yet so successful was that early practice in firmly establishing dairy qualities that excellent individual milkers frequently occur in beef families, and we believe from these, and sires from milking families, lost ground for the dairy may speedily be recovered; but a description of a model dairy Shorthorn cow now demands more particularization, and some specifications as to performance required.

As care and creature, owner and animal are closely related, the model cow must begin with the model owner, and should be the object of her owner's deep solicitude, familiar with his voice and touch, fed by a generous hand, sheltered and protected from storm, and cold and heat. and noxious insects, given pure air, pure water at proper temperature, and sufficient exercise. No dog should worry, or children chase. No foot of employe, with heavy boot, should dare insult, unless under dreadful provocation, and then the cow should have some rods the start in open field, and full knowledge of intent. She must be registered. Her weight should be from twelve to fifteen hundred pounds, with appetite to eat unquestioningly what is placed before her; her constitution robust; her disposition kind, yet resolute, courageous, the better to withstand misfortune's rack when overtaken; easy to milk, and gentle, so the children by one or two or three at once may safely practice on her in learning the fine art of milking. Her style: Neat horn, mild bright eye, sweet face, clean throatlach, well-formed neck, straight broad back, deep sides, balanced quarters, nice tail with full switch, legs set to stand not totter on, fine soft hair, mellow skin, large udder, not pendant but wide, extending in front, with teats apart—that fill the hand; her color red, or roan; if white, will not condemn. When found, she needs no recommendation; there she stands, look at her.

Her product: Now comes the crucial test. We should not want too much. Better that she maintain her flesh, endure and please the eye. Who likes to see a herd that, skeleton like, must haunt their owner? A good large yield should satisfy, say five or six gallons per day for a considerable period, when fresh; then very slowly falling off in quantity to the close of a ten months' milking season, when she should have two months rest. This must be good milk, rich milk, milk that needs no Babcock tester to prove its merits, milk you know is good, good for infant or adult, for city or country use, milk like that which wrung from the poet that outburst of praise:

"Had I a cow that gave such milk,
I'd dress her in the finest silk," etc.

Bearing on quantity and quality, we recite an incident within our personal knowledge: Two thrifty Michigan farmers, admirers and one a breeder of fine Jersey cattle, recently stayed over night with a farmer near Goshen, who was then milking eight recorded Shorthorn cows, one of which was a young heifer and two were strippers. The Jersey breeder chanced along as the morning milking was being finished, and seeing the well filled pails, exclaimed: "What a pile of milk you get!" Further interested, he followed the milk to the straining, and as pailful after pailful was poured into the capacious strainer, in broad day light, remarked to his host, "and that's good milk." One more incident bearing on condition while in dairy service. A buyer for a Goshen market in search of fat stock called and was told one of this herd of eight would be sold. He asked which one, saying "anywhere else I can tell which cow is fat, but here all are fat."

I have aimed to present not a phenomenal animal, which it would be impossible to numerously reproduce, but a good common sense Shorthorn cow, such as can be produced in great abundance, and I believe in proportion as breeders carry this line abreast with beef production, will they succeed in maintaining and advancing the Shorthorn standard to the embodiment of bovine culture, excellence and perfection.

DISCUSSION.

Mr. Williams. I wish to make one remark, and it is this: I would like to know why he did not want to read such a good paper to the Shorthorn Breeders? If there is a Shorthorn cow on the market ,there is always sale for them. There is so much in the milking qualities of a Shorthorn cow; they are usually taken in preference to a Jersey or Holstein.

Mr. Cotton. His paper I regard as a very important one and a very creditable one. It treats of matters important to Shorthorn breeders, and which they should consider. We can not afford to waste time with the Jersey, Holstein and Ayrshire, but the general farmer does it. The Shorthorn will make good beef, they are good milkers, and are sufficient to answer all our purposes. I think that a matter of consideration to breeders of Shorthorns. Do you prefer any particular families?

Mr. Nye. I have not sufficient experience to be able to name a large number of families. I think, however, there are sufficient milking qualities in all families to be able to breed from.

Mr. Robbins. I think he is well posted on all these matters, and while you have a chance I would advise you to ask him all the questions you wish answered. I know he is well informed. To make the best milkers is not to turn the calves out with the cow.

Mr. Nye. My mistake is when I fail to give them feed.

Mr. Robbins. A good Shorthorn cow will eat almost anything.

Mr. Williams. I have one Shorthorn cow I make a specialty of. We desire to make as much butter and have as much milk as we can consume in our family. We take good care of these. When two or three out of a herd show signs of milking qualities, we select them and turn the others out to look for themselves. I have one cow that has given an average of at least three gallons a day for nine months out of the year. It has been at least a year and a half since she dropped, and she is still giving over two gallons a day. I have some two or three cows I have been milking for some thirteen or fourteen months. I have been feeding since fall on equal parts of bran and hay. I wish to make milkers out of our Shorthorn cattle. As for beef qualities, we should take care of our cows from the time they drop their first calf.

Meeting adjourned to meet at 9 A. M. Wednesday.

Meeting called to order 9:30 A. M., Wednesday, January 3, 1894.

WHAT OUR FAVORITES DID AT THE WORLD'S FAIR.

BY MRS. VIRGINIA C. MEREDITH.

Their record is so fine that every one interested in Shorthorns is already familiar with it, so I will not recite the list of prizes won. I can not, however, forego this opportunity to express my own satisfaction with the results and to congratulate Shorthorn breeders. It may safely be said that the Shorthorn breed has again assumed its old place of supremacy. Two points, at least, are settled: Breeders have come to think that color is immaterial and pedigree is valuable only as it expresses quality. This is a decided advance.

There was, indeed, something to be feared from the advent of the new breeds—that is, breeds which were new to us on this side the water—because we were unfamiliar with them. The extreme care with which these new breeds were introduced, backed by intelligence and capital, gave them a place in the shows which rather dazzled the onlooker; but as time has elapsed, their show-ring record has not been at all detrimental to the breed we advocate.

A more closely contested show has never been made than the one last summer in the Columbian Exposition

Two years ago I read before this association a paper on Shorthorns adapted to the dairy, and said at that time that it was a fact, whether established by one witness or five witnesses, or no witnesses at all, the fact has now been established by a complete and most thorough test. You will recall that in the dairy show at the Exposition the Jerseys entered for the contest had records of from fourteen to thirty-four pounds of butter per week. Shorthorn breeders thought that a great beginning and something hard to overcome, but the outcome shows that the whole Jersey herd was not able, during the test, to make an average of fourteen pounds of butter. The fact that the Shorthorns were able to take and maintain so good a position as they did is extremely creditable to the breed. It is, however, no surprise to those who are familiar with the best class of Shorthorns, but it is a great thing, and a fortunate one, to have had the fact emphasized.

You will remember that in the cheese test, covering fifteen days, the Shorthorns averaged thirty-two pounds of milk, which tested 3.6 per cent. fat, and at the same time made an average gain of two pounds per day. Practically, then, these Shorthorns made one and one-half pounds of butter and two pounds of flesh per day—truly a combination greatly to be desired by the farmers of this country.

We are to be congratulated, I think, upon the fact that Shorthorn breeders themselves were so alive to the interests of their own breed that they were willing to enter two hundred and thirty-three Shorthorns for the Columbian show.

There were fifteen distinct breeds of cattle for which premiums were offered, and in the particular classes where Shorthorns came in competition with other breeds more than half the prizes were taken by Shorthorns. Of a total of $2,600 given in sweepstake prizes, $1,4 0 were won by Shorthorns. This is a record of which we should be proud; and the whole sum of the matter is that, in popular estimation, the Shorthorn has again taken its place of supremacy.

In the dairy test there was one point brought out vividly—a point long known to those familiar with the facts—the superior flavor of Shorthorn butter. The Shorthorn butter steadily scored higher than the Jersey butter in flavor.

We are to be congratulated upon the fact that a special prize of $1,000, offered as a breeders' prize, brought in competition five herds, of which four were Shorthorns.

In the Fat Stock show for sweepstake prizes, Shorthorns won the yearling and two-year-old prizes, and in the championship for breeds by ages, a Shorthorn was first in the yearling and two-year-old class; the champion of the show was a Shorthorn, and the sweepstake herd was a Shorthorn herd.

As an Indiana association we are to be congratulated upon the fact that the Messrs. Robbins should have maintained the reputation of the State with such signal successes.

I am always very proud of my State, and never felt, for the moment, more pride than when Gay Mary was led out as first prize winner in the magnificent display of Shorthorn cows, thirty in number.

Another event in this contest was a signal triumph; I refer to the one-thousand-dollar grand sweepstake prize which was awarded to the Messrs. Robbins. We are to be congratulated upon having in our State breeders of such enterprise and ability as the Messrs. Robbins have proven. It was a great thing that in this international contest Messrs. Robbins' herd should have scored such great success. They deserve our generous praise.

There were many victories attained by our favorite breed at this great Exposition, but as every one present reads the Breeders' Gazette, and that has been so full, clear and concise in all of its reports, it is useless for me to speak further upon the subject of Shorthorn victories at the Columbian Exposition.

My real object in accepting the invitation of your Secretary to address you to-day is that I may congratulate you, and congratulate myself, in being identified with the Shorthorn interest which has won such honor in the great Exposition. Of course, my fancy and sympathies are with Shorthorns. It could not be otherwise, when upon our farm and in my family the Shorthorn has been for so many years a prominent feature. As far back as 1836 Shorthorns were brought to our place, and I have known them all my life, and consequently understand their merits better than any other class.

I thank you for your attention.

DISCUSSION.

Mr. Sankey. I think the association is under obligations to Mrs. Meredith for the excellent talk she has given us this morning, and I hope she will continue to visit us from year to year, and that we may all learn from what she has said to take a new lease on our ideas for Shorthorns. She has shown that they are certainly the best cattle for farmers to raise, and we ought to try to instill it into the minds of our neighbors, and they will become more popular than they are.

Mr. Williams. I do not think we can add anything to the remarks already made by Mrs. Meredith.

Recess of ten minutes taken to allow members to be present at nomination of members of the State Board.

HOW CAN THE PRESS BEST SERVE SHORTHORN BREEDERS?

GEO. G. HILL, EDITOR AMERICAN FARMER, CHICAGO.

Mr. President, Ladies and Gentlemen:

Some time ago I received a letter from the Secretary of this association asking me to read a paper at your meeting. I thought best to choose for my subject one that in a measure related to my own business.

Some time ago I received a letter from your worthy Secretary asking me to read a paper before your meeting. He was kind enough to say that he was very short of available timber, and that poor timber would be better than none, so he called on me, and that is my excuse for appearing before you to-day—the blame lies with him.

As I appreciated full well that for me to offer you advice on the breeding and other points of raising Shorthorns would be much like carrying coals to Newcastle, I chose for my subject one that in a measure related to my own business.

As I am a newspaper man, possibly some of you have guessed what answer I make to the question, How can the Press best serve the Shorthorn Industry? and possibly you have guessed aright. It is one word: Advertising.

I imagine I hear some of you say "times are too hard"; "we can't afford to advertise"—and perhaps some of you will even say "advertising doesn't pay." But I'll not grant one of your propositions. On the contrary I would say that when times are hard and people do not feel like buying cattle or anything else, your business is most in need of advertising. That advertising does not pay is a fallacy. It always pays if judiciously done and properly followed up.

That you can not afford it is possibly true, to a certain extent, but here comes my panacea—for, like every advertising solicitor, I have something new to offer. Possibly before going farther I should tell you that the suggestions I have to make are not entirely original; that they are the adapted ideas of another man and that man is Major Handy, who was chief of the Department of Publicity and Promotion—or, in other words, of the Department of Advertising of the World's Columbian Exposition.

When the various departments of the World's Fair were called into existence, people looked askance at the prospect of such an expensive establishment, and no department was looked upon with more suspicion than Major Handy's. "What," they said, "an entire department with a high salaried chief and a corps of clerks just to manage the advertising!"

And yet, when the fair was over, those who were in closest touch with the great exposition acknowledged that the advertising department had been the prime factor effecting the success of the fair.

And now comes the extraordinary part of it all. The World's Fair practically paid not one cent for advertising space; that is, to advertise the fair; and yet Major Handy procured advertising space in the world's press that at card rates would have cost millions of dollars.

How did he do it? It is precisely the object of this paper to tell you and to propose to you Major Handy's scheme as applied to the Shorthorn industry.

The scheme which he followed was to send out to the newspapers all over the world "news bulletins"—not advertisements, mind you, but news bulletins describing the progress and later the workings of the fair. Those bulletins were widely published.

We poor editors often burn the midnight oil trying to get up reading matter that will prove of interest to our readers, and of course we swallowed with avidity the tempting bait which Major Handy offered us, for his bulletins were genuine news, up to date and exceedingly interesting, and so we advertised the fair, and we never got a cent for it, but that is no matter.

Now to diverge for a moment. I do not believe that the Shorthorn industry is in such dire straits as some people would have me. I do not believe in looking glum and talking hard times. I always sympathized with the boy who was out of work and had but a nickle to his name and who spent that nickle for a shine. I believe, as he did, that there is nothing like keeping up appearances. The Shorthorn industry is prosperous, exceedingly prosperous, as compared to some others. Of course times have been hard. We have passed through a financial crisis. Our worthy legislators at Washington are following their favorite pastime of wasting time and keeping business men, particularly manufacturers, in suspense and it is but natural that your industry, like all others, should feel the effects of the storm; but, gentlemen, the Shorthorn industry in this country to-day stands on a rock foundation. The Shorthorns at the World's Fair achieved a success both in the dairy test and in the show ring that in some years would have resulted in a boom for the breed, and the results, while they may come slowly, will surely follow.

Perhaps you are wondering what all this has to do with my subject. I will tell you. Every Shorthorn breeder in this country should put on a bold front. Every farmer should hear, not once nor twice, but continually, that there is no breed that pays one-half so well as the Shorthorns. Every farmer should hear continually that there is no GENUINE, general purpose cow but the Shorthorn. Never let him forget these facts. Keeping everlastingly at it brings success. Nothing succeeds like success, and possession is nine points of the law. Claim success and herald it abroad and it will be yours.

And this is how the press can benefit the industry, by heralding abroad the achievements of the Shorthorns. But how is the press to know of them? Some people suppose that an editor knows all things by intuition, but he does not. It is to your interest that he should know of every Shorthorn success, and you must tell him.

And now for the scheme in a nutshell. I would suggest that your Secretary be instructed to prepare "news bulletins." (You see I have it in for him, because he called me "poor timber") These bulletins should be prepared as frequently as is practicable, say every two weeks if possible. They should be brief, newsy and to the point. They should be made up of short, pithy items—facts. Facts are what we want. Facts are what talk. They exist and they only need to be published to be put before the agricultural community, and you will soon see the results.

And how is your Secretary to obtain these facts? You must furnish them to him. Every time you sell an animal at a top price write him. Every time you sell a Shorthorn steer or a car-load of them for a good figure, write him. Your neighbor, perhaps, sold a car-load of native steers a few years ago for the average market price. He came to your sale, bought a good bull, and this year his steers topped the market. Jot down the figures and send them to your Secretary. Your steers will show a greater gain on a given amount of feed than natives, perhaps than any other breed; keep the figures and write your Secretary. If possible, flood him with this kind of facts. Let him boil them down into short, meaty paragraphs. Have typewritten copies made and send them to all the best agricultural newspapers.

Will the papers publish them? Of course they will. If one breeder adopted this plan and wrote direct to the papers the editors might think he wanted too much free advertising, but every editor with a good head on him will be glad to publish such notes when they advertise the entire breed. It is not necessary to give too many names. Work for the breed and you will find the agricultural editors only too ready to co-operate with you. This kind of advertising will cost you nothing but the little extra expense your Secretary may have to go to; but the editors are foxy fellows, some of them. They realize that your prosperity means their prosperity. The publishers of agricultural papers remember that you have been advertisers—*generous* advertisers—in the past. They know that you will be again. They may not be awfully bright fellows, but they are bright enough to realize that by helping you to create a demand for Shorthorns among their readers they are going to create a demand for their own advertising space.

Once let me create the demand for the cattle and I know full well that you will not be slow to buy my advertising space just to let my readers know which one of you raises the *best* Shorthorns; *who* owns "the only bull that ever beat Young Abbottsburn"; *who* had the best Shorthorn cow in the Columbian dairy test.

This, gentlemen, is how the press can best serve the Shorthorn industry, by acquainting the farming community with the special virtues of the breed, by proclaiming its superiority over the scrub—aye, over all competitors—by chronicling every Shorthorn victory, but *you* must furnish the facts.

DISCUSSION.

Mr. Williams. No doubt most of the members present thought from the tenor of the paper it was going to lead in an advertising line. To my surprise it was put in a way that I had never thought of before. I have often stated that when a man did a good thing in any undertaking it is almost impossible to keep him from telling it; but, on the other hand, if he does a bad act he tries to keep it from being known. Now, we are anxious to report our good sales to the Secretary. By making him the medium through our correspondence, or in the furnishing of this matter to the papers, I think it is not only the better plan, but the shorter plan, and it will procure better results, on the whole, for the breed, while it may not to the individual, although I think that the man or the breeder never loses anything by special or individual advertising. There is no money ever expended for any business that will return a greater profit than using our best advertising mediums for whatever we are making a specialty of. Of course it is useless for Shorthorn breeders to advertise in anything but agricultural papers.

Mr. Thomas. One suggestion of the paper was so appropriate and so new to me, and that was the manifestation of the willingness on the part of the agricultural papers to publish these papers. What advances the interests of one of us advances the whole. I like the plan he suggested of bringing the interests of the Shorthorn breeders before the people. While times are good of course we have no trouble in selling all we can raise; but while times are as hard as those we have been passing through, it is quite an item to get to sell well, and when we have made a good sale, and it is spoken of in the agricultural papers, it encourages farmers to buy more of the stock. I am glad this thought was suggested.

Mr. Sankey. We had expected two more papers, but the gentlemen will not be present. The Governor has not had time to prepare a paper, but he said he would be glad to come before the Association and make a few remarks. He is not here now, but as the time for the election of officers has arrived, we will proceed and elect the officers.

On motion of Mr. Robbins, Messrs. Nye, Heagy and Thomas were appointed a Committee on Nominations.

Mr. Phillips. I think that if we were to advertise wheat and horses now, I don't think the wheat and horses would pay the bill. I think that during these times some of the advertising I have done has been charged for so that it hardly pays. I suppose, however, that there is hardly a business of which you cannot say the same. I like the idea brought forth in Mr. Hill's paper as to general advertising

We know editors are a little inclined this way: that if an article comes in that looks a little like an advertisement, they are inclined to drop out the advertisement and publish the rest. I believe, however, that notes of general interest should be published, because those short notes are always very interesting to me, as I can get so much for so little reading. In these days of shortening up everything, we want news presented to us in as short form as possible. We have no time to peruse long articles, so the matter of giving notice of a herd here and there over the State is a very important thing for the Shorthorn breeders.

Mr. Hill. I want to say a word about cutting out everything that looks like an advertisement. Some people won't take medicine that looks like medicine, and some people won't read anything that looks like an advertisement. They ask if we have sold our reading space for advertising. In our reading matter columns we never publish anything that is an advertisement for any business, but just short items about the breed in general.

REPORT OF COMMITTEE ON OFFICERS.

Mr. Nye. First, the committee would recommend that the offices of Secretary and Treasurer be merged into one, and filled by the election of one man.

We have selected as President, T. A. Cotton, Manilla, Indiana; Vice-President, James D. Williams, Pond Creek Mills, Indiana; Secretary and Treasurer, W. S. Robbins, Horace, Indiana.

Mr. Cotton. I thank the committee heartily for the honor they have conferred on me in selecting me as the President of this association. I hope that the association will grant my request to be excused from coming before them to fill that position. I have reasons why I think I should be excused, but I will say that there is no member of this association that enjoys coming to these meetings better than T. A. Cotton. I have gathered many thoughts that are beneficial at these meetings. I ask, however, that you put some other man in this place. I thank you for the honor you have conferred on me in the past in making me your Vice-President.

Mr. Robbins. I will say that it looks a little as though I ought not to be brought in by this committee, and that it was my request that my name be taken off. Not that I want to shirk any responsibility, but I think there ought to be a change. I wanted a change, but the committee would not consent to it, and I have consented to serve this body, and I ask Mr. Cotton to reconsider his decision.

Officers as selected by nominating committee elected.

REPORT OF TREASURER.

C. E. Thompson, Treasurer, read the following report:

January 12, 1893.	Balance	$7 23
January 12, 1893.	Dues from Secretary	13 00
	Amount on hand	$20 23

On motion of Mr. Thompson, it was decided that the Secretary be authorized to prepare programme for next meeting.

Mr. Sankey. Will the Shorthorn Breeders' Association hold its meeting next year during the same week that the State Board of Agriculture meets? I think we should appoint a day just after the Board, the same week. We have missed that meeting on account of having this at the same time. The object in having all the meetings together this year was for the purpose of getting reduced railroad fare.

Mr. Robbins. Can it not be arranged so that the meetings will be all held on separate days, one after the other?

On motion it was resolved that a committee of one be appointed to confer with the secretaries of the other associations as to the time of holding the next meetings.

Mr. Thomas. I suggest that the Swine Breeders, Wool Growers and the Shorthorn Breeders have their meetings held in one week, independent of the others, even if each member has to pay full fare by coming at a different time from the meeting of the State Board.

Mr. Cotton. I believe it will not do any harm for this Association to recommend a few names for expert judges. It is a settled fact among breeders generally that the expert system is superior to the committee system. In our societies I find that there are serious objections to both systems, but so far as I am concerned I prefer to show before experts.

After a brief discussion by members, Mr. Robbins said:

For several years men have been selected in the associations and their names sent to the different associations. As Secretary of this Association, I have had a good many letters from secretaries of Fairs, asking for a list of experts. I think a picked up committee is a very poor plan, and the Fair using it could not come in as a first-class Fair. Most horsemen would rather be judged in this way than by the average committee picked up by the Secretary of the Fair, composed of a doctor, a lawyer, or some other people not competent judges.

Mr. Robbins moved as an amendment that a committee be appointed to confer with the other associations and report to the Secretary in time to publish the list.

Mr. Strange. In seconding the amendment I wish to say that if we have single judges—I take exception to the word "expert"—in the revision of that committee, it would be wise for us to have progressive, active breeders, and distribute them over the State so as to make it as little expensive as possible for fairs to secure them. But we are aware of this fact, that a good many men are dropping out of the business, consequently I think it would be well to get active Shorthorn men who have good executive ability and who will vote on the merits of the exhibits. I will say that I was the only man in our stock association that voted for a single judge; all the others voted against me. Nevertheless inside of two years I prevailed upon them to employ an expert to judge the cattle. Since that we have had single judges in our association, and our fairs have been better. The idea has advanced, so I favor the revision of this list.

Vote taken on Mr. Robbin's amendment, and the amendment carried.

Committee of five, consisting of Mr. Nye, Mr. Heagy, Mr. Robbins, Mr. Williams and Mr. Phillips, appointed to revise the list of expert judges.

Mr. Sankey. In retiring from this office I want to thank you for the kindness and courtesy that has always been extended to me. I have tried to fulfill my duty to the best of my knowledge, and am sure I appreciate the kindness that has been shown me during the last three years. I now take pleasure in introducing to you my successor, Mr. Cotton.

Mr. Cotton. Gentlemen, it is with embarrassment that I now appear before you, but as you have made me your standard-bearer I will say this: I will be here with you every time, but I don't want you to expect me to make this a success as a meeting unaided. I expect your hearty co-operation, and when you come here I want you to feel that you have come to do something and to add something to the interest of the Shorthorn Breeders of the State of Indiana.

Vote of thanks tendered to the retiring president of the Association, Hon. J. M. Sankey.

Adjourned.

FOURTH ANNUAL MEETING

Indiana State Dairy Association,

Held at Crown Point, Ind., Thursday, Dec. 28, 1893.

At 10:30 meeting was called to order by Professor Plumb, who announced the first thing on the programme, address of welcome, by Mr. Bartlett Woods, of Crown Point.

ADDRESS OF WELCOME.

BY BARTLETT WOODS, CROWN POINT.

Mr. President, Ladies and Gentlemen:

This meeting is in the interests of intelligent labor, to make life easier and labor more profitable on the farms of Lake County. I look on this meeting as a part of the new system of education that has given us Purdue, experimental stations, institutes, etc., and I take pleasure in extending a hearty greeting and welcome to all assembled here. I welcome the meeting of the State Dairy Association here in Crown Point because I know it is working for the best interests of the dairy farmers of Indiana.

When our friend Harris wrote me that he had suggested that the annual meeting of this association be held in Lake County, I was agreeably surprised, and when Professor Plumb, the worthy President, wrote me that they had decided to hold the fourth annual meeting of the Indiana State Dairy Association in Crown Point, I felt gratified. It is an honor to this county; we appreciate it as recognizing Lake County prominent as a dairy region. Our people are anxious to learn, and what has been done in the last few years proves that progress has been made in the right direction.

I welcome this meeting because its work will show the possibilities of the cow when handled with kindness and liberally fed. Ignorance will turn the cow in the corn stalks to freeze and feed her on short rations. Intelligence will stable her and feed for a profit. This association teaches the better way, it will show how the cows can be made warm and comfortable, paying back to its owner increased dividends, and how the lessons learned by practical men would, if practiced on our farms, double the income from the ten thousand cows owned in Lake County.

I welcome this State Dairy Association meeting because it gives an opportunity for meeting those who have proven by actual practice the better methods. It recognizes and shows how science has aided us. Science has given us the separator, changing the whole system of handling milk, reducing the labor to a minimum, and that little machine that tells us the exact value of each cow's milk, and the value of the cow herself.

Science has made it possible for three men in a creamery to manufacture butter from the milk of five hundred or six hundred cows. Science has come to our farms and tells us the value of every kind of food. It teaches how to utilize and to save our corn crop, so as to have a rich and succulent food all winter; it has given us the silo.

The mission of this association is to carry knowledge to the people for their benefit. Its field is as broad as the State, and is worthy of success. We welcome one striking feature in the records of this association—they place a high estimate on the value of the cow. What challenges our admiration more than a well-bred dairy cow, owned by a man who treats her kindly and well? Look at her; all the points that go to make up a perfect cow fully developed. Adapted to all reasonable requirements or demands made on her. Chewing the cud of peace and contentment; a living picture, a beauty! The foster mother of the child, the poor man's friend, to all a necessity, contributing one of the purest, healthiest and most nutritious of human foods, one of the best gifts of a kind Providence to man.

To you, Mr. President, I wish to say, we feel grateful for the interest you have taken in arranging for this meeting, and our friend Harris, whom we know so well, is kindly remembered by us all. We appreciate his efforts in our behalf in reference to this meeting here.

We trust that this new departure of holding the annual meeting in the dairy counties of the State may be so well attended as to prove it the better plan. In conclusion, I trust that those from a distance, and those of our own people may have an agreeable time, and when they go away to their homes may they carry with them pleasant memories of the State Dairy meeting in Crown Point.

REPLY BY PROF. PLUMB.

Ladies and Gentlemen:

In behalf of the State Dairy Association of Indiana, I most thankfully receive the welcome of the citizens of Crown Point and Lake County to hold our annual meeting here, and our presence here among you indicates the fact that we are glad to be with you. From the most available statistics that I can secure from the Board of Agriculture of the State of Indiana, I find that Lake County practically ranks second in the importance of dairy interests in the State. The figures of 1890 are the most recent that I have been able to obtain. These figures show that Marion County, for the year of 1890, has $624,344.89 worth of dairy products listed to her credit; Lake County, $473,873.93, with Allen County coming in close second. As we have been holding our Dairy Association meeting in Indianapolis for the past three years, it seems very essential and appropriate that we should come here to Lake County, the county second in importance of dairy interests in the State and hold a meeting in order to break the record and leave the State capital and go out among the people. Two years ago at a meeting of the association this matter came up as to whether it would be wise or not to hold meetings in various parts of the State. There were two factions in the matter and the majority decided that it would not be wise; but late in this session it was thought that perhaps it would be wise to hold a meeting away from Indianapolis, and Lake County seemed to be the favorite place. Letters were written to the officers of the Board of the State Association, and, with possibly one or two exceptions, it was unanimously voted that it would be a good idea to hold our meeting away from the capital, and heart sentiment seemed to be that if this association is to accomplish the results that it was intended it should, by going among the people we would get those results much better than if we stayed at Indianapolis all the time. It seems to me that the truth of this is beginning to show on the face of it, for the reason that as we open our session this morning we find an audience that is equal to what is generally in attendance at Indianapolis, and the prospects are that we shall have a most enthusiastic and encouraging meeting. So, in conclusion, I thank you most heartily for your kind greeting and welcome to us here, and we have no reason to doubt, but every reason to believe, that this association will feel much gratified by the time of adjournment that it has come here to Crown Point to meet the dairymen of Lake County, and I believe the interests of the association will be very much improved thereby.

President. Our Secretary and Treasurer, Mrs. Worley, sends word that she will not be present during this meeting. Meanwhile it will be necessary to elect a temporary Secretary-Treasurer until the regular election of officers, which occurs to-morrow. So it will therefore be in order to nominate a temporary Secretary-Treasurer.

Motion was then made and carried that Mr. Walter S. Commons, of Centreville, be Secretary-Treasurer temporarily.

President. Now that we have a temporary Secretary-Treasurer, it will be in order to hear the report of that officer, and as Mrs. Worley is not here to report, the Secretary will read it.

Report read by Mr. Commons:

REPORT OF SECRETARY-TREASURER FOR 1893.

Mr. President and Members of the Dairy Association:

In presenting this, my third annual report, I wish to tender with it my resignation from the office, with which you have honored me since the organization of this association. We have, as you know, held three meetings, with membership fees amounting in all to $105. We have published and mailed over 1,600 volumes of the report. Copies have been published each year in the Agricultural Report of the State. We have met all expenses over those paid for by membership fees by the advertisements in our report.

Through the influence of this association a Dairy Department was added to our State Fair, and on the recommendation of the manufacturers of dairy machinery in Chicago, your Secretary was placed in charge of the Department of Dairy Products at the State Fair in 1892. We paid $38 in premiums, the cost of which was met by the sale of milk and butter on exhibition.

The exhibit of dairy products for Indiana at the World's Fair was made under the auspices of this association. As superintendent of the Indiana dairy exhibit, I am proud to report the excellent display made by the following exhibitors, Indiana butter receiving some of the highest Scores:

Robert McBeth	Fairland, Ind.
P. Schlosser	Wanatah, Ind.
Lewisville Butter and Cheese Company	Lewisville, Ind.
Wanatah Creamery Company	Wanatah, Ind.
Centreville Creamery Company	Centreville, Ind.
Spiceland Creamery Company	Spiceland, Ind.
A. J. Hayman	Lowel, Ind.
Separated Butter Company	Renssalaer, Ind.
Mrs. Linnie King	Edinburg, Ind.
Robert Collins	Fortville, Ind.
Robert Mitchell	Princeton, Ind.
Sarah Edgerton	Spiceland, Ind.
James Riley	Thorntown, Ind.
Sophy Rippey	Syracuse, Ind.
Mary Thompson	Ellettsville, Ind.
T. M. Saultmauk	Sunman, Ind.
Caroline Edgerton	Spiceland, Ind.

We had $1,000 appropriation for the exhibit—with one exception, the smallest of any of the States. We made more exhibits for the money than any other State, and returned sixty-five dollars to the treasury of the Columbian Exhibitors for Indiana, and gave fifty dollars in premiums to creameries and women butter makers of our State.

I wish to thank the members of the Dairy Association for universal courtesy and kindness to me. While expressing my desire for the continued prosperity of the association, I hope that at some future time I may be able to serve them.

LAURA D. WORLEY,
Sec.-Treas.

TREASURER'S REPORT.

Receipts.

Balance on hand from year 1892	$76 50	
Received for memberships, this year	32 00	
Received for advertising in Report	60 00	
		$168 50

Disbursements.

For circulars	$2 50	
For advertising for stenographer	40	
For report for publication	1 00	
For expense of C. S. Plumb	7 50	
For expense of self	7 50	
For stamps	3 50	
For stenographer	10 00	
For Professor Huston	5 00	
For mailing reports, stamps, etc	14 00	
For printing reports	53 00	
For stationery	2 00	
For expense in Chicago, soliciting advts	6 00	
For express charges on reports	35	
		112 55
Balance on hand		$55 95

President. Are there any remarks upon the report of the Secretary-Treasurer? I will state that in view of the fact that this association has no income, excepting from its membership fees, that can be counted upon, I consider that report to be a very creditable one, for the reason that we have a balance of nearly $56. We have paid for the printing of our annual report, which we have gotten out with the services of a competent stenographer, and we are, in every sense of the word, independent and in good condition; therefore I think that the report is unusually satisfactory.

The next subject upon the programme is the reports of committees. As I remember there is only one committee to report, and as I am chairman of that committee perhaps it won't be out of order if I refer to that matter from the chair. That committee was appointed for the purpose of seeing what could be done about getting a bill passed at the last session of the Legislature for the purpose of preventing deceptions in the sale and manufacture of dairy products. My report will be a very brief one. As we had practically no money to go to Indianapolis to make a visit with the Legislature and establish those means which are customary in order to get the successful passage of a bill, the only thing we could depend upon to have a bill get before the House was public sentiment, and that applied to the sentiment of those members of the Legislature that were interested in getting bills for the public welfare before the people. It is perhaps enough to say that I made several visits to the Legislature and interviewed the members of both houses, and that bills were put into the hands of the Agricultural Committee of both Senate and Assembly, and there they died a very innocent death. We did not succeed in getting any solace whatever. We had suspicions that those bills were killed, at least in one of the Houses, by a gentleman who promised me every possible attention would be given to the matter. We have attempted to get a respectable and honest bill on our statute books for the purpose of getting a better protection of our dairy interests in the State of Indiana, so that there will be less deception in the sale and manufacture of dairy products in this State. Thus far we seem to have accomplished almost nothing, and I believe it is almost impossible to accomplish anything unless this organization has a fund of money at its disposal so it could afford to send men down to the capital with enough influence back of them to see that this measure would be put through It stands to the disgrace of Indiana that we should have no laws on our statute books to that end, and the mere fact that there are interests in the State of Indiana that would send men to the capital to defeat such legislation is evidence that there is something wrong here in our own State. I do believe that a committee should be appointed at this meeting and an attempt made to get through with a bill of this kind and have a dairy commission appointed.

It is well to note in connection with this subject that there will be no use in trying to proceed in this matter unless a commission is appointed. Therefore, I hope that the members of this association, before we adjourn, will consider the advisability of having men appointed who will keep working away at this subject until we have what we want.

The next thing upon the programme is a paper upon "Feeding Dairy Cows for Profit." Before this paper comes up I wish most cordially to invite all those present to take part in this question and the others which are to come up. One of the valuable features in a meeting of this kind is the asking of questions and the replies, and we can make the meeting doubly satisfactory by having a number of questions asked after each paper is through with Furthermore, if those present in the room who wish questions answered will write them upon a slip of paper and have them passed to the Secretary, I will see that all these questions are given due consideration before the adjournment; that is, we will have a question box in addition to our original programme.

Paper my Mr. Adam Gerlach and Mr. John Hack.

Mr. Gerlach. It encourages me to look over so many faces of dairymen and farmers. I see that most of them have been in the business with myself. We all know that the longer a man does a certain thing the better he understands it I am merely a beginner in the business, notwithstanding I am free to tell you my way of getting on with my dairy business. I undertook two years ago to build a silo, and I built it. I am fully satisfied that the silo is with me a success. It gives us, this time of the year especially, a large quantity of feed, when that kind of feed is scarce. Now I will tell you the way I built it. My silo is 14x14 feet, 23 feet deep, built on the south end of barn, with two doors cut in the south end of silo for the removing of ensilage. The doors are 2½x3 feet; the ensilage is thrown down a chute, which keeps out wind and snow in winter time. I built it very much the way our grain elevators are built. I used 2x6's, well seasoned, on top of each other, with a layer of roof paint between each piece of lumber After the silo was built I gave it two coats of this roof paint, well mixed with fine sand, so that the sides resemble and look like four black brick walls. I then ran four-inch strips on the outside, up and down, and sheathed the building with well matched siding, which gives me a dead-air space and keeps the ensilage from freezing. I claim the silo to be a great feed-saving institution, especially for the dairyman.

With a silo the farmer can put up his corn fodder when it is easily handled keep the same well preserved and rendered palatable for his cows to eat in winter. I would not want to run a dairy without a silo. It saves a great amount of feed, such as grain and hay. I believe if any one who is in doubt will come to see my silo as to its paying ability, I can assure them it will pay well if they have the right kind of cows. We all know that the scrub animals will not respond to good feeding, and this ensilage is good food for horses and all the animals on the farm. Horses will eat it just as readily as cows. The first thing in the morning I feed my cows about 20 pounds to each, and the same quantity the last thing in the evening. I have it arranged so that in cold weather I can give my cattle warm water with their food. It has been my experience that this warm water mixed up with bran will increase the flow of milk, while on the other hand if you increase the bran and give cold water, it will not increase. Warm water and warm food, if the weather is cold, will enable us to keep up the flow of milk. I think, and not only think, but know, that the silo is a big thing for the dairyman, and it has come to stay. I think the more practical we have our business and methods of conducting our business the better it is for us.

DISCUSSION.

Mr. Woods. There is a great difference of opinion among all our farmers as to which is the best corn to plant. Do I understand that Mr. Gerlach has tried all the different corns and that he prefers the big white.

Mr. Gerlach. Not in the silo. It gives us plenty of feed during the drouth in July and August, but I think the ensilage is not so good from this big white corn as the ordinary corn. I think the ordinary corn better for the silo.

Mr. Harris. I have experimented for the last nine years with corn for a silo. I first commenced using southern sweet corn. I used a little sorghum. I found sorghum no good whatever. I used the common field corn and I found this very satisfactory; but after awhile I got some white corn called Dungan's White. I find that this corn gives me better satisfaction for the silo than any corn I ever experimented with. It is probably the largest corn you ever saw. What I want for the silo is a large stock and a large ear. It should be put in the silo in its glazed state, then all the nutriment will be retained.

Mr. Chamberlin. Have you ever discovered any objectionable odor in the milk?

Mr. Harris. Not at all, as far as I am concerned. About one person in a hundred will find a little odor from the milk of cows fed on ensilage; also in the butter. I have no objection to the butter, and the fact of it is I like it.

Mr. Commons. I want to add my short experience to that of Mr. Harris. I ordered from the seedsman some B. & W. ensilage corn for seed, and it proved to be seed that had been grown in the North sufficiently long to become pretty well acclimated, and the result was that my ensilage developed a large growth of ears as well as foliage, and I regard it as a very fortunate mistake, inasmuch as my ensilage is much better than it would have been without the large growth of ears.

Mr. Harris. In the matter of feeding dairy cows for profit I would refer to the question of ration. I feed about twenty pounds of corn ensilage twice a day, morning and evening. I feed with that a pound of linseed oil meal. I find if I feed more than one pound of linseed oil it scours my cows. When feeding the ensilage I give the cow all the nice, bright oat straw that she can eat. I keep it before her all the time. For a change I give my cow oats and pea meal. I find that this is the best food to make milk that I ever fed. When I commence feeding my cows oats and pea meal the cows increased in their milk over the linseed oil meal right along—over 15 per cent. After feeding the oat and pea meal we went back to linseed oil meal, and found that my cows shrunk over 15 per cent. Then we commenced feeding oats and pea straw, and immediately we got an increased amount of milk. I don't know how much increase we got in butter; I did not test my cows at that time, but I think, and the fact of it is I know that ensilage—good sweet corn ensilage and oats and pea meal are the best producers as a food for milk that I have been able to discover.

Mr. Hack. How much oats and pea meal do you feed?

Mr. Harris. A quart, morning and evening. The balance of the time my cows are eating oat straw if they are eating anything.

Mr. Hack. Would it be better to feed hay than oat straw?

Mr. Harris. I have experimented a great deal in the matter of feeding, and as a dairyman I am after the dollars. I make more money with this ration than I do with feeding clover hay. I think good, nice bright oat straw kept in the barn and given to the cows—all they can eat—is a money-making feature for the dairyman. That has been my experience.

Mr. Hack. Where do you get your pea meal?

Mr. Harris. I raise it. The way I do, I plant my peas about two weeks before I plant my oats. When the peas get well sprouted, I broadcast three-quarters of a bushel of oats over the field and let them grow and ripen. I cut them just as you do hay with the mower. I carry that straw right to the barn, thresh it. Peas and oats are ground together. Oat straw and pea straw are fed together.

Capt. Jackson. I believe that Mr. Harris is right for milk, and Mr. Gerlach is on the right line for milk. But for butter they are not. I would say to Mr. Gerlach the more warm water he gives his cows the more milk he will get, but there will be a good deal of water in the milk.

Mr. Gerlach. It is the quantity of milk that I am after.

Capt. Jackson. Quantity not quality. It is much easier to produce flow than it is richness. If you want butter fat you must not put water in it. Solid feed all the time.

The President. Would be glad to hear from some other people on this subject. It is a very important one. I would like to inquire if anybody present has fed any wheat?

Mr. Bullock. I fed wheat and found it very satisfactory. I think it as good as any feed you can get.

The President. Do you think it would pay better to feed wheat than to buy bran?

Mr. Bullock. I could not say as to that.

The President. Do you crack the wheat?

Mr. Bullock. Have it ground. As to whether it is a cheaper feed could not say.

Mr. President. Has anybody else tried wheat?

Capt. Jackson. You will be surprised to hear me say that I am opposed to the silo. I don't believe it is a good thing. It may do for short lived animals, but for the long lived Jerseys it will not do, for the reason that it becomes more or less decomposed before they get it. Speaking about the matter of sweet silo, I never saw any. My opinion is whenever you put it in the body of an animal you want to retain for any length of time, you are ending her days.

Mr. Merrifield. I don't know whether it is the proper thing to bring this up, but we are talking about silos, and that is the reason I asked Mr. Harris whether he ever detected any peculiar odor from the milk after feeding ensilage. I know that in every city in the United States where milk has been handled to any great extent, there has been more or less discussion as to its effect upon the quality of the milk so produced. I remember the Oatman Brothers, who are prominent producers of milk and handlers of milk also, in the city of Chicago. After they commenced feeding ensilage, they lost quite a number of the most valuable contracts which they had, because the people objected to the quality of the milk so produced. It was my good fortune during the past season to interview a number of practical dairymen who were attending the World's Fair, who were shipping milk to Boston, New York and Philadelphia markets, and men who have tested silos thoroughly. I learned from the men who were shipping into Philadelphia market that, as a result of using ensilage, they lost their customers entirely. The same in New York with one shipper, and three in connection with the city of Boston. Now it has accurred to me that perhaps the material out of which the ensilage was made was not of proper character for a dairy cow, or else that it was not cut and put into the silo at the proper time or in the proper condition; but, as to all of these points, I am unable to give information, as I have had no practical experience with the silo, and it does seem to me before giving our approval we ought to know something of the effects of it. We ought to know just what is the effect of ensilage after it is transmitted into the stomach of the animal, just what kind of chemical action it undergoes there, and just what effect it has upon the milk.

Mr. Harris. I think the greatest fault-finders were the condensed milk factory people. Outside of that I don't know that there is any great objection. There is this about it. You will hear more noise from one person who don't like a thing than from a million who do like it. That is the reason we hear so much talk about the feeding of ensilage. There is not a dairyman that I know anything about who has dropped the feeding of ensilage. I do know that some butter we made tasted very strong of silage, but that was butter we put up before the corn was in its glazed state. Before the nutriment was all in the corn.

Mr. Banks. In regard to the flavor, as far as I have been able to test it, I consider that sweet corn gives the very best flavor of any corn; the next best flavor comes from green clover, and the next ensilage. The last two seasons, the dealer to whom I am shipping claims that my milk has a better flavor than ever before.

President. There are two points which must not be overlooked in connection with feeding ensilage. In the first place, if you change from dry feed or from pasturage right onto silage, unless you feed carefully there is likely to be an odor from the milk for one or two milkings. I believe that the general testimony in those parts of the country to-day where silage is fed largely, is that there is practically no injurious effects from silage as a food so far as its influence upon milk was concerned. Furthermore, silage should be fed on the same basis as roots, that is straw or hay should be fed along with it.

Mr. Jackson. I want to say a word in regard to wheat. In my younger and better days I was a teamster and fed wheat principally. I feed it to my cows now, but don't think it good. When feeding it to my horses I drove a younger and slicker team than now, but it did not last, and my horses began to die and eventually every one died. Veterinary said it was the wheat they ate that killed them. It is only a matter to put before the people here to think about. I do not think it s best to feed our dairy cows the whole wheat. You may grind it, reduce it to a certain extent and make a very palatable food, but do not think it best to put it on as a food for strength.

President. If agreeable to the members of the association, we will call this subject closed, but before adjourning there is a matter which right here I wish to bring up. The membership of the association for the year 1892 was forty-two, 1893, thirty-three members. Our Secretary has here in his hand a list of eighteen people in the vicinity of Centreville, Wayne County, in this State, that have made application and already paid in their membership fees to become members of this association. They have got a big boom in dairymen in Wayne County. We are going to have a first class meeting here and I hope there will be no less than eighteen or twenty people join, and I would like to see fifty become members of the association.

Mr. Harris. It costs but a dollar a year to become a member, and there is something besides the dollar to think about. In the first place the interest of the dairymen of the State are identical and we must stand together. By coöperation we can bring about certain results, which will be for the benefit of one another. We publish an annual report giving all of the proceedings, they are also published in the different papers, and in every way possible we try to make the association of value to the dairymen of the State, and so I cordially extend in behalf of the association to you a welcome to this association, and hope as many of you as can possibly spare a dollar will come forward before you leave the room this noon and become members of the association for 1894, when certificates will be given to each one of you, and if you have friends that are located in the county not present, I hope you will use your influence with them.

Meeting adjourned until 1:30 P. M.

AFTERNOON SESSION.

President. The first thing on the programme for this afternoon is a paper by Mr. John N. Beckman, of Brunswick, on "How to Breed Up a Dairy Herd."

HOW TO BREED A DAIRY HERD.

BY JOHN M. BECKMAN.

Mr. President and Members of the Indiana Dairy Association:

LADIES AND GENTLEMEN—The subject assigned me, "The Breeding of Dairy Cows," from its importance, could well have been left to abler hands than mine. What I can say about it can be said in a few words, the most important of which are: READ, BREED, FEED and WEED.

I place READ first, for the first essential in a successful undertaking of any kind is as full a knowledge as possible of that which we wish to do. This can best be obtained on this subject by reading the agricultural press, especially the *dairy* and *special purpose live stock papers*, such as ' The Jersey Bulletin," "Holstein-Friesian Register," etc. A study of some of the standard works on heredity, such as Miles on "Stock Breeding," would not come amiss.

We are now ready to select our BREED, which is a matter of serious moment to the novice as well as to the experienced dairyman contemplating a change. There are various breees claiming public attention.

Here stands the lordly *Shorthorn*, whose form and pedigree are all that can be desired. There stands the majestic *black and white*, whose looks plainly say, "I can fill the pail!" Then comes the *Ayrshire* with her beautifully mottled coat, who will not be gainsaid. The *Guernsey*, with her gentle ways and coat of surpassing richness, is continually gaining friends. Last, but not least, comes the little *Jersey*, fresh from her World's Fair victory, loudly proclaiming that she is queen of the dairy.

I believe, however, that good dairy cows exist in any or all breeds, and that a breeder or dairyman usually has the best success with those animals that suit his particular fancy. My own choice is the Jersey, being firmly convinced that a good Jersey will make more butter to the acre than any other breed. From the length of time that she has been bred for a specific purpose and the care that has been exercised in keeping her pure from admixture with other blood, makes her very prepotent, and for that reason peculiarly valuable as the improver of other breeds or races.

Having selected the *breed*, the next thing of importance is FEED.

Unless you feed generously and judiciously all else is in vain. The Jersey or the Holstein kept on scrub commons and in conditions will soon, *very* soon, deteriorate into a *scrub*.

Having carried out the three first propositions of this paper, that is, having read upon the subject, so that our course of action seems plain; having selected the best possible breed—of course, no one selects any but the best; having a full supply of the best dairy foods, the question is, "How shall we begin to so breed that the heifers shall be better than their dams?" Breeders have studied over this for time out of mind, now, *I*, a comparative *novice*, am asked to tell in this paper just how to do it! I am sure I sincerely wish I could, but this must necessarily always remain experimental. I can but give my own opinions and tell you what I do, which we will place under the fourth and last proposition—WEED.

Whatever breed we have selected, it is always necessary to remember that there is greater difference between individuals of the same breed than there is between *breeds as breeds*. It is, therefore, necessary to use great care in the selection of the individual. Improvement must necessarily come mostly through the sire. If good milch cows always produced good milkers, the race of unprofitable dairy cows would long since have ceased to exist. Among dairymen it is rare indeed that calves from poor milkers are raised—the trouble has been with the sire.

In the first place, in selecting a sire, find out how much milk his dam gives, how much it tests by the Babcock, and how many of her immediate family were above the average. The farther back this knowledge extends, the better you can judge of the probable value and prepotency. An ideal pedigree for a bull, it seems to me, would be one whose dam is a large butter and milk producer, and whose family record as such is high. A phenomenal record counts for nothing. I would prefer a cow that gives twelve pounds of butter per week, and all of her relations on the female side would give from twelve to fourteen pounds per week, to a cow having a record of twenty-five pounds per week and not much of anything else to recommend her. Such cows are "sports" and just as liable to breed indifferent stock as otherwise.

The bull being selected, take your scale and tester into your own barn, and weed out without mercy. Sell, or give away, at the first opportunity, every cow that does not come up to your standard. It often happens that, for some reason or other, a calf is raised from an inferior cow; if the bull is an unusually good one, the calf often proves a good cow. This has several times happened in our own herd, but the second generation invariably proves inferior. It is, therefore, safest to save none but the best. Our present mode of testing is to weigh the milk for one day each week, test a sample with the Babcock tester, determine amount of butter fat given that day, and *record*. In this way we get a fairly accurate estimate of what each cow is doing, and at the end of the year will know how much butter she has produced and whether it has paid to keep her or not. The benefits accruing from a systematic weeding out can hardly be overestimated. A case in point: A young dairyman—neighbor of mine—a few years ago followed this course, and in one year, by reducing his herd (which was an ordinarily good one) from fifteen to eight, giving the same feed and care to the eight that he had formerly given to the fifteen, a little more than *doubled* his net profits.

DISCUSSION.

President. We can devote a few minutes now to the discussion of this subject, and I leave the matter open to the house. I think it is one of the most important points in connection with farming and breeding up of the herd. The average herdman is not doing half the work he ought to do, and there are men here who have got pretty pronounced opinions upon this subject, and it seems to me we ought to hear from them. Let us have a general discussion on this subject about bringing up a herd now for a few minutes.

Mr. Woods. Seeing that no one else comes forward, I will make an effort to say something on this question. The idea presents itself that if we want to breed up, our cows are deficient in some points. The farmers in Lake County have got 10,000 cows, and there is not one farmer in ten who knows the actual value of this. Now, before they attempt to breed up, they want to know the condition of the cows they have. We will imagine a man in some manufacturing business. He has twenty-five men at work. He would not lump all their work. A farmer goes out and milks twenty or twenty-five cows, lumps the milk and fills his cans. Does he know the value of each cow? In the manufacturing business an employer would calculate that he knew the value of every man that he employs, and I claim that the starting point is for farmers to know the value of every cow they employ, and when the deficiency is discovered, then they can go on and breed up.

President. Mr. Harris, will you tell about how you breed a herd?

Mr. Harris. Ten years ago I went into the dairy business with the intention of selling cream to the citizens of the city in which I live. I bought me some cows, and I must say that I bought them of farmers or individuals who told me that they were the best cows they had. The fact of it was, they were no use whatever. Since then I have made up my mind that when a farmer tells me he is selling the best cow he has, just to ask him whether he has any more cows. The difficulty was in getting my herd together. I bought what the farmers told me were good butter cows, and it was not long before I found out that I did not have nearly the milk I ought to have to supply my customers. Then I began selling them off. Just then I ran across copies of Hoarde's Dairyman and the Breeders' Gazette, and commenced studying them. The first thing I made up my mind to was that the way for me to get a herd of cows for the purpose of supplying my customers with cream was to breed them. So I bought me a pure St. Lambert Jersey bull, registered I commenced right. The heifer calves, when they were born from my best cows, and about sixteen months old, I bred back to their father, and I continued doing that until I had a herd of cows that tested 5⅘ per cent. butter by the Babcock test. As soon as I found a cow that would not test 3 per cent. I sold her to the first person that would give me something for her. I did not keep her a minute. She was not profitable. The best way to breed up a herd is to breed them up as I say. If you are selling milk to the creamery for the amount of fat there is in the butter, get the best Jersey or Guernsey bull that you can find. If you are selling milk by weight, or milk to consumers, get a milk-producing bull and grade up your herd that way. I know of no other way to get a herd cheaply, and a good herd, than to breed for what you wish to sell. That is the way I built my herd.

President. We would like to hear from some of the others present in regard to this.

Mr. Beckman. The fact of it is, Mr. President, there are so few of us that have any opinion to express. Although we might in one sense of the term be classed as dairymen, yet our work in the past ten or fifteen years has been simply the gathering together of a herd to supply the most quarts without reference to the quality, and hence we are here more in the line of students than instructors.

Mr. Banks. I have had a little education in this matter. I think the average dairyman in Lake County relies upon buying his cattle instead of breeding them up. I think they make a mistake. I believe dairymen in Lake or any other county should save some of their best heifers and raise them. They think it is more profitable to sell and buy. I think Mr. Harris struck the nail on the head about breeding. My first experience was with Shorthorned. Shortly after I commenced I visited General Meredith. He had a noted cow which had a very nice heifer calf, only a few days old. I priced the calf, but thought the price too high. However, I took the calf. I think that a herd of calves, when properly bred, give me the best results. In regard to Jerseys, I bought one of the best cows that I could find, and I purchased, soon after I got her, a Tormentor Jersey bull. I saved the calves of the best cows and brought them up until to-day, when I think I have been well repaid. I think dairymen generally give too little stress to the male. I think if the dairymen of Lake County would sacrifice a little and raise some of their best calves, and pay a little more attention to the male strain of the milking qualities, that they would have better success than they have now.

Captain Jackson. I don't think I can teach these gentlemen anything, but I can at least say something. I have been breeding to raise herds. I have been trying to raise dairy cows, and I have been in all kinds of business in this country for the purpose of making the most out of it. I find this in breeding up a dairy herd, it takes good judgment in the selection of the stock. There are decidedly poor milkers and poor stock in all families. But, as these gentlemen have told you, it is better to secure the best than to select something else that perhaps is easier for you to select but don't supply your wants. Now, my judgment is that you can breed, and breed to perfection, a milker just as well as any, and a proficient milker and a milker that will milk you all the time. I claim, too, that you can raise an animal to suit you, but it requires some science, some knowledge how to do this. Without a male you better not try it. If you select a beast with good, large teats you will never have to strip your teats. You will have cows that will produce a good flow of milk and will get it very easy. Otherwise you will hear people speak of the Jersey as being a small-teated animal. It is no use to raise them that way. I give you my experience as I know it is true. As I tell you, you can raise them in that way or you can raise them to be worthless. It is science, practice and care that you have to consider along with all of them. If these gentlemen here are in the practice of selling their milk they had better use some other cows than the Jersey. I don't know anything that gives more milk than the Holstein, but if you are not pretty well fixed she will eat you out. I think, considering the amount of food she eats, the Holstein does not give you the profits. I am a Jersey breeder and have been for over fifteen years. The first one I started with cost me $766 for the male. The next cost me $1,000, and I would say to these gentlemen, never get a cheap animal. If you want that which is good you have to pay for it, but don't fail to get a good one. I don't care whether it is the cattle family or any other, it won't pay you to expend your time on common stuff. You want the best.

Mr. Harris. Mr. Chairman, I think that the great trouble with the farmer and with the dairyman that have milk routes or supply milk for the city trade, in breeding up a herd, is that the first thing they do after getting a few cows is to buy the very cheapest bull they can get, regardless of what the bull is good for. I think that they go to work and breed their cows to this bull just for the purpose of having their cows fresh at a stated time, regardless of whether the calf they get from the cow will be good for anything or not. The time to stop is right now. The time to get a good bull is right now, and get a bull, not because he is cheap, but get a bull for the business that you are engaged in, whether it is for milk or for butter, and let the poor bull go for sausage just as quick as you can, no matter if you get but half what he is worth.

Mr. W. J. Davis. I would like to hear from some of these gentlemen who have tried breeding and grading. My first purchase down here was a grade cow, and she was such a good milker and good cow that I went back to the gentleman I bought her of in order to find out something of her breeding, and he said she was a Holstein and Jersey grade, and the calf she had is now one of the best I ever saw, and a big milker. Some of the gentlemen here must have tried it a good many years.

Mr. Merrifield. Mr. Chairman, I have a herd of about 50 animals that are entirely grade; about half of them grade Holstein, and the other half grade Herefords. I have tested the two grades along side by side for about ten years. I had at the head of the herd a portion of the time a full blooded St. Charles bull, and a portion or the time a full blooded Hereford bull, selected especially for his milk production. Both of these animals were high grade as far as immediate ancestors were concerned, but undoubtedly connected with low grade, with some Jersey blood mixed in. Now, I could not give the exact percentage that is represented in these grade animals, but by a process of elimination I acquired a very satisfactory herd of cows—a profitable sort of herd. I have been engaged the prinsipal part of the time in producing milk for shipment into the city. I find that my herd ranks well with other herds as a milk or butter producer, and certainly averages well as a milk-producing herd. I have taken special pains all the time to have a good, No. 1 animal at the head of the herd, and in addition to that I have chosen from the heifer calves the best animals, as far as I could judge, and used them as the foundation of my herd, occasionally buying, but in the majority of instances depending upon my own get for the building up of the herd. This is my own plan.

President Plumb. Unless there are further remarks upon this subject I will call for the next paper.

Captain Jackson. These gentlemen are on the right line, but I think I can improve them a little bit (and unless we can improve why we better stop), and that is this: When you go to grading up you lose that fine value, that real value that you ought to save for this reason: where you have a full-blooded Jersey you can record him, everybody knows, at no little advantage. Every calf that is dropped from those recorded cows will more than pay for what your cows eat. You can always sell for an extra price. I claim that my little herd of Jerseys well pay me for their feed for just the extra calves I sell at extra prices, and you may be sure I save the best for home. I record them and somebody comes along and pays me well for it. There is the why of the whole thing, where you have them thoroughly bred up in that way and they are recorded you can always find buyers and at good prices.

Mr. Davis. Captain Jackson's remarks are well enough, but the worst of it is here, most of the Lake County farmers breed for milk. It is right enough to preserve the purity of the blood and record the animals, but if they are breeding to ship, if grading is the thing to do, they want to know the best grade. They are after the most quarts of milk, and it is not a bad idea, if you can get a grade that gives a great quantity of milk, to have the milk as rich as possible. It don't injure the milk to be rich. I have some cattle and expect to have more. I came out to Crown Point and bought a bit of land and expect to keep on breeding. I have been crossing the Jersey and Holstein, intending to get rid of the poor ones as you suggest, but there must be gentlemen in the room who have had a great deal of experience in that line.

President. I will take the liberty of answering Mr. Davis' question in a brief way, and that is as I consider it essential to breed up a herd. One must first get a bull. After having become familiar with the breed and knowing what the breed can attain, and getting an animal that has quality back of him that he is sure of, and if that bull is not registered, after he is sure of the quality back of him the best thing to do is to register him.

And now having a herd, two things are essential to develop that herd up to a standard of respectability. First a pair of scales, and second a testing machine. I believe a man can not keep a herd of cattle profitably without weighing the milk once a day in order to know how many pounds of milk each animal is making, nor can he sell, or ship or make cream or butter unless he knows the quality of that milk, and that can be very easily determined by a testing machine. At Purdue University, after each milking, the milk is weighed. Since I have been in charge of this department I require a report of every ounce of milk, and each year endeavor to show an increase over the year before. For example last year the best showing made by any cow was 8,300 pounds; a grand-daughter of hers after having her first calf, being three years old last October, has made over 7,000 pounds. She will have her second calf in January, and I will guarantee that after having her second calf, she will make a showing of 10,000. Now we have bought a bull whose five nearest female relatives average over 17,000 pounds of milk a year each, and he is a bull of butter quality as well as milking quality, and I have a daughter from him that has not yet had a calf, that I will guarantee when she is four years old, will make a butter record than any of the animals of that breed that we have in our barns at present. I consider that the best method of breeding up a herd.

The President. If agreeable to the association we will pass along to the next topic on the programme.

FARM LITERATURE AN AID.

BY W. S. COMMONS, CENTREVILLE, IND.

Times and seasons change, so do methods. Modern changes in methods pertaining to all kindred avocations of business life are closely linked in their individual effects. For instance, for the same reasons that improved facilities for manufacture, cause the self-binder to be produced at reduced cost, is the farmer enabled to produce his cereals at reduced cost. So we have all along the line a tendency of cause to effect an increase of production, which viewed from the standpoint of supply and demand, tends toward the cheapening of the article produced. Hence, the necessity of constant study and thought upon the many intricate details pertaining to the profitable conduct of the dairy or farm, that we may be better able to meet the results of this inevitable law of supply and demand, in a manner satisfactory to our own purpose.

It is not within the province of a large mass of our farm population to enjoy the benefits of a liberal education, or home training that is compatable with modernized methods in our line of business pursuits, but most individuals are in possession of the inherent faculty of comprehension, and as we are not justifiable in allowing such faculties to lie dormant, it behooves us to take advantage of the offered experience of our more enlightened co-laborers, made available and within the reach of every one, by and through the medium of numerous weekly papers, periodicals and State experiment station documents.

Too much prejudice exists against such literature; a condition, it seems to me, that is not so much the result of ignorance as force of trained habit; the same motive that impels the less intelligent brute to obey the commands of his master. This element of character in man, when cultivated, leads to the belief that when he has reached that plane of action trodden by his ancestors he has quite enough knowledge for all practical purposes. How to remedy this state of affairs has long been food for earnest thought and faithful work, in sharing which the able and patient editor (who is sometimes accused of aiding and abbetting his own financial progress) has shed abundance of unabsorbed light upon the subject, until, in the sense of our own unsympathetic reasoning, we can scarcely see excuse for so much darkness. Personally, I feel that I can not express too much gratitude for the benefits derived from the many valuable lessons placed before me weekly by such journals as *Hoard's Dairyman*, Indiana and Ohio *Farmers*, in addition to which it affords me much pleasure to note the importance of careful perusal and mental digestion of the valuable tables, giving the true and unbiased results of actual and practical experiments, as conducted at our State University.

In the combination of the above-mentioned influences, we have the nucleus out of which has grown the grandest of university extensions, as it were—the local institute and the reading circle.

I have observed, in individual cases, that institute work has proven to be the entering wedge toward the removal of those absolutely pitiful prejudices that are far more in the way of farm progression than are the political intrigues of which we hear so much.

"Earn bread by the sweat of thy brow," is an adage familiar to all, and, as usually applied, refers to the exterior only, but in the light of modern experience should apply to the interior as well.

The natural desire of man should lead him to seek that knowledge best adapted to promote the happiness and welfare of himself and his family, yet how many honest, plodding and well-meaning farmers have spent the best days of their usefulness in the impossible task of meeting and taming the great forces of nature along the line of his supposed progression with mere brawn and muscle, without even attempting to brush the cobwebs from the mind, and allowing its susceptible force to share the unequal burden of the body.

I was recently asked by a farmer if I did not think I could farm quite as well without the aid of borrowed experience. The fact that our oldest and ablest students of agriculture and dairy are reaching new and practical ideas every day controverts any such thought. This farmer has the usual advantages of enlightenment, and is called a practical man, yet he claims there is no money in dairying; has no knowledge of the silo, and his stock has but little knowledge of the comforts of a warm stable and its necessary accompaniments.

This man has a neighbor across the way, who in no wise possesses natural advantages over him—unless it be perceptibility, but whose belief and demonstrations stand out in bold and undeniable contrast to that of his misguided neighbor.

I refer to another instance, where the man is well to do, endowed with more than ordinary intelligence, has a modern creamery and excellent facilities for making good butter, has ample barn room, milks several cows, not one of which ever sees the inside of the stable, and are fed all winter on the ground, and are milked outdoors, rain or shine.

This man computes interest very carefully, discounts all bills payable, and turns investments to good account; yet takes no note of wasted feed, wasted time and wasted energy in trying to get value received for butter at the corner grocery. The inconsistency of this man is convincing evidence that enlightenment is wanted somewhere along the line.

I am pleased to say, however, that so far as my observation goes, that this false position of the dairyman—in our locality—is being rapidly corrected through the combined influence of the reliefs alluded to above, and the further convincing evidence, the truth of which is demonstrated in successful and impartial creamery practice.

A great change is noticeable within a few years in the manner in which our people provide comforts for the herd, and in the general treatment of their business. While few of our barns are modern in their construction, they are as a rule made comfortable, and where cows formerly were allowed to roam the stock fields in all kinds of weather, where mere sustenance was barely obtainable, we now find them well housed and contentedly munching well cured and well housed corn stover or silage.

Thus we find ourselves living in an age of enlightenment, and if we do not profit by our own and others' experience, we are "not showing mercy unto ourselves," but disobeying the spirit of the illustrious mandate, "Go thou and do likewise."

DISCUSSION.

The President. We will now devote a few minutes to the subject of farm literature. As a dairyman I am sure there are a number here who have felt the value of the dairy journal to their welfare. Mr. Harris will you begin the discussion.

Mr. Harris. As I said in the preceding subject, I got my early education, or the starting of it, from a farm journal, or rather from a dairy journal, called *Hoarde's Dairyman.* I presume a great many copies of that paper are taken in this county, as it is always taken where a dairyman can be found. It has been of great value to me in teaching me how to get my herd together and how to feed them. I got almost all of my first knowledge from *Hoarde's Dairyman.* It told me how the New England farmers fed ensilage. Once in a while I gained a little knowledge on the same subject from some other paper, but *Hoarde's Dairyman* kept punching me all the time until I thought there must be something in it. Also, about everything that pertains to our business. I soon found out that I had actually been a "dude" farmer. I have taken several of the different farm journals, but I must say that if a man is to conduct his farm successfully, his dairy successfully, it is almost absolutely necessary, that is, if he wants to keep up with the procession, to get a good, live farm paper, a good, live dairy paper, and a good livestock paper, in connection with the other literature that he uses. Without all this it is very hard work to make a farm profitable.

The President. We would like to hear from some one else on this subject. If not, we will pass on to the next.

Mr. Harris. I would like to hear from my friend, Captain Chamberlin, of Elkhart. He can tell us whether farm papers are good for a man just starting into the dairy business.

Captain Chamberlin. Mr. Chairman, you have all heard of the man who makes bad breaks and always doing something inopportune; well, I think when neighbor Harris calls on me to attempt to say anything to these dairymen, it is one of his bad breaks. I have had no experience and know nothing about dairying except what I have heard of it. If I went to milk a cow I would hardly know which end of the cow to go to. Through the influence of some of my neighbors, for the ast year or two, I have been reading and thinking something of dairying, and have been very much interested in it. On Mr. Harris's invitation I went to visit his farm and saw his silos, and asked the best way to find out about these things. He told me to take some agricultural paper. I told him to give me a list. I went home and subscribed for six; I read these papers from the heading to the last line every day when they arrived, advertisements and all, and I have had a great deal of satisfaction out of it, and considerable amusement and instruction, and as a result of it I invited Mr. Harris to come over into our neighborhood and deliver some of his famous speeches, and silos are being built that never would have been built except for the information that we got through the papers. I have induced a great many of our neighbors to subscribe for *Hoarde's Dairyman*, and every one who took a trial subscription has continued until to-day, and is almost as much interested as I am, and I believe that it is missionary work to extend the circulation of such papers as these, because I believe it is extending intelligence, and not only that, but it is extending means and furnishing ways to provide substance, money and profit to the people of the country, and doing that with the least work for the men and for the women of the country.

President. The next thing on the programme is the subject of "Why Should We Test Our Cows?" by Mr. Joseph Echterling, of Lafayette. He has covered some of this topic in his paper, and he has brought with him a testing machine and will show you how the process of testing cows can be carried out in a very practical manner, but before he begins I should like to have him briefly explain why the cows should be tested. I will state in the way of introduction that Mr. Echterling is a butter maker of considerable experience. He is on his way from this meeting to take charge of a large creamery out in Nebraska, and so you get the experience of a man very well versed in his business. The machine which you see before you is what is known as the Babcock Fat Testing Machine for testing the percentage of pure fat in the milk of different cows, and also in cream and in cheese, and perhaps I might explain to those of you who are not familiar with this machine and with the principle involved in it so that you will understand more fully. The fat in milk is a very light substance, being much lighter than the water matter, and for that reason it rises to the surface. Now the principle of this machine is the same as that of the separating machine. If milk is placed in a vessel and revolved very rapidly in a circle, the force of gravity tends to throw the milk outward and away from the fat. In the case of this machine we have centrifugal force. A quantity of milk is placed in a small bottle, a measure of sulphuric acid equal to the amount of milk is then placed in the bottle, and the milk is decompcsed, the acid destroying the cheesy substance and sugar, leaving the pure fat separate and uninjured. This bottle is then placed in the Babcock machine and rapidly revolved about six minutes, which brings about a very complete separation of the fat from the rest of the contents of the bottle, which is filled well up into the small neck used for measuring the fat in. The bottle is then revolved in the machine for a minute or so, and the fat is then found packed tightly by itself in the measuring neck of the bottle, where the per cent. of fat in the milk can be read.

Mr. Commons. Should samples be taken from both night and morning milk?

President. One can take a sample from each milking and test both samples and take the average. You can not determine the exact value of a cow's milk by one test. A machine like this should be used a number of times, because there are various conditions which will make cows' milk vary slightly in the different periods of milking.

WHY WE SHOULD TEST OUR COWS.

BY JOSEPH ECHTERLING.

HOW TO OVERCOME SOME OF THE DIFFICULTIES IN SECURING A PERFECT TEST.

A bad separation of fat is not always caused by the strength of the sulphuric acid. Work has demonstrated that by slight changes in the manipulation, at least three kinds of tests can be made of one sample of milk with the same acid.

1. A test giving a clear separation of fat.
2. A separation of fat which contains more or less of a black, flocculent substance, especially at the bottom of the fat column.
3. A test very much like the second, except that a white instead of a black substance interferes with a clear measurement of the fat.

The black substance that appears is probably charred fat and indicates too strong an action of the acid on the milk. The white adulteration of fat shows either too weak a reaction or an incomplete separation by the centrifuge. Each of these two defects can, of course, be produced by acid either very much too strong or too weak. They can also be caused by different manipulation when acid having the correct strength is used.

If the acid is so poured into the milk in the test bottle that it passes through the milk instead of running down the inside walls of the test bottle, a portion of the milk is thus acted on by the strong acid before it becomes diluted with the water in the milk. This makes a more intense action of the acid on a small part of the milk, and the fat it contains is somewhat decomposed and blackened. This black substance is then separated with the fat by the usual process of finishing the test and makes the measurement of the fat uncertain.

Another cause of the black stuff in the fat is to warm milk. Sulphuric acid sp. gr. 1.82 may work all right for testing milk when both acid and milk are at a temperature of 60 degrees Fahr., but if the weather changes or the testing is made in a warm room where the temperature is up 80 to 90 degrees Fahr., a great deal of the black stuff will be found in the fat. The action of the acid on the milk will be more or less intense, according to the temperature of the liquids. Persons who have tested milk throughout the year at creameries or other places may have noticed that in winter the fat is often light colored or whitish, while in summer it is a deep yellow. This is caused by the difference in the temperature of the milk and acid as well as the strength of the acid.

Cooling the milk before adding acid to the test bottle will often prevent the formation of the black substance which appears in the column of fat.

The white, "curdy" substance that sometimes separates with the fat can be destroyed, either by adding the hot water necessary to bring the fat up into the neck of the test bottle in two portions, and whirling the test bottles in the centrifuge after each addition of water, or by warming the milk in the test bottles so that it will be about 80 degrees Fahrenheit, when the acid is added.

It is my opinion that any person who has trouble from either the black or white substance separating with the fat can remedy the difficulty by some changes in the manipulation, provided the acid is anywhere between 1.82 and 1.83 sp. gr. As far as I know, no exact experiments have been made yet to determine the relation between the temperature of the milk and sp. gr. of the acid, but I will venture to guarantee an entirely satisfactory working of the Babcock milk test, if in addition the following precautions are observed:

1. An acid having sp. gr. 1.82 should be used with milk at 60 to 70 degrees Fahrenheit. If the acid is stronger cool the milk to a lower temperature. Somewhat weaker acid can probably be made to work all right by warming the milk.

2 When pouring the acid in the test bottle, hold in a slightly inclined position to follow the inside walls to the bottom of the bottle and not drop through the milk in the center of the bottle. If properly poured into the test bottle there will be a distinct layer of milk and acid, with no black color between them.

3. Thoroughly mix the milk and acid as soon as measured into the test bottle. A better separation of fat is obtained by mixing at once, rather than by allowing the two liquids to stand unmixed until enough tests have been measured out to fill the machine.

4. After five minutes' whirling of the test bottles, add hot water until the test bottle is filled up to the neck only. Run the centrifuge one minute, then fill the neck of the test bottle with hot water and run the centrifuge another minute. Adding the necessary hot water in two portions is often a great help in getting a clear separation of fat. When the test bottles are taken out of the machine they are put into hot water 140 to 160 degrees and the per cent. of fat read at that temperature.

President. I would like to appoint an Auditing Committee to audit the bills of the association, and I would like to appoint as the Auditing Committee of this meeting Mr. W. A. Banks, of Laporte, Mr. J. M. Knox, of Lebanon, to audit the bills of the Secretary-Treasurer, reported at this meeting. There is a little more business which the members of the association might consider at this time, and that is to appoint a Committee on Resolutions, to report before we adjourn.

It is moved that a committee of three be appointed to report on resolutions. The motion is seconded. A committee will be appointed in the course of the afternoon.

Mr. President. There is one thing that I should like to ask shippers. The general impression is that any good milk will be accepted in Chicago, so that to the milk shipper it is no value. Now, I understand that there is a milk commission in Chicago that demands a certain test. I will ask Mr. Gerlach if he can tell what is the test required in Chicago?

Mr. Gerlach. From 2½ to 3 per cent.

President. I have a telegram handed me saying Indiana butter received seventeen awards from the Columbian Exposition, signed Laura D. Worley, Superintendent of Exhibit.

Mr. Woods. I would like to present to this meeting the number of milk tickets that have been sold and shipped, each milk ticket representing a can of milk. I have reports from the C. & E., the Ft. Wayne, the Pan Handle, but have not the Grand Trunk or the Monon. The Chicago & Erie sold in 1893 65,000 milk tickets. That represents 65,000 cans of milk. I failed to get a report from the Grand Trunk, but I am assured that it ships fully equal to the C. & E., that would make 65,000 cans of milk for the Grand Trunk. The Ft. Wayne report is 39,185 cans of milk. The Pan Handle is 42,984 cans of milk, and the Monon I consider about equal to the Pan Handle, or about 40,000, or a total of 252,169. The B. & O., the Wabash and the Michigan Southern all take milk. So this would bring it up to about 300,000 cans. Then there comes the creameries and the private dairies. I understand from Mr. Gerlach and some of the others that the Chicago law requires that the milk test from 2½ to 3 per cent. So this brings up another question than testing the cows for the quantity of milk. I would like to get these statistics out so they can be shaped in this report. I wish to say that the Farmers' Institute will be held here on January 25th and 26th. Another thing, I wish to give Mr. Beckman the honor of building the first silo in Lake County. Last year Lake County built eight silos, and I believe Mr. Beckman built the first.

The President. Is there not a gentleman or lady in this house who would like to ask questions on any subject that has been touched or that has not been booked on the programme?

Mr. Harris. Let me say something right here to set the farmer and dairymen to thinking. Why would it not be well for the farmers and dairymen who own these cows and ship their milk to have had a cow that had been bred for the purpose of putting fat into her milk? That butter fat could be taken to the creameries and sold on an average of 22½ cents a pound. The skim milk could be kept on the farm and put into the hogs, into the chickens, or into the heifer calves at a large profit. Now, there is something right there for us to think about this afternoon, and to talk about among ourselves. Would it not have been better if the farmer had kept that milk at home, that is if you had the cow? Would it not have been better to keep the skim milk at home to feed hogs, chickens and heifer calves?

Mr. Woods. I know what I get out of my cows by shipping milk, and I would like to know what Mr. Harris gets by making butter and feeding the skim milk. I have 23 cows and they average me, selling my milk, equally about 26 cents a day apiece, feeding them a pretty good feed with silage.

Mr. Harris. A good butter cow will make 300 pounds of butter a year, every 365 days. There are plenty of those cows in the State of Indiana, a good many more than there used to be. At 22½ cents that is $67.50. I judge the skim milk fed back to the hogs is worth 20 cents a hundred pounds. It is worth that to feed a heifer calf. If you get a heifer calf out of a 300-pound cow that heifer calf when she stands is worth $20. That is $87.50, provided she gives a heifer calf. If she gives a bull calf, that calf will, at the end of three, four or five weeks, if fed on skim milk, be worth $3, $4 or $5, whatever the butcher wants to pay you for it. The man who sells his milk kills the calf and only gets chicken feed.

Mr. Beckman. I know something about one side of the question. Mr. Woods has a very large income from his cows. This depends upon what state his cows are in. If they are all fresh, why we can beat him at the creamery.

Mr. Woods. They are just as a herd will run.

Mr. Beckman. Of course it is largely a matter of an individual or owner of the cows. One of our patrons milks eight cows, which made for him in the month of October $72, November $74, and for the month of December, although we have not settled with him, they will bring seventy odd dollars. In addition to that he has all his skim and buttermilk.

President. Would like to inquire if there is any person in the house who is a manufacturer of butter for private customers, or to a particular class of trade? If so, will they please raise hands? Will some one please give the people present his or her opinion upon the profits of running a butter herd. Mr. Beckman, you have, prior to the time of the creamery, made butter and shipped to Chicago. Can you give some of your experience in making butter?

Mr. Beckman. For a number of years we contracted our butter, made it at home, and kept out of the poor house; but we find the creamery plan suits us best. The income is not so good, but the work is much less. You are not so restricted as to time. You can take your milk to the factory and be done with it, while if you are contracting to private customers your work is never done.

Mr. Harris. There is another thing about this, Mr. Chairman. The farmer that has ten or a dozen cows can afford to buy a separator, No. 2, and by skimming his own milk and taking that to the creamery the creamery can afford to pay him four cents more a pound than if the milk is brought to the creamery and they skim it themselves. They can afford to pay the dairyman four cents more for skimming his own milk. They pay me three cents a pound for skimming and one cent for delivering. Then I have all my skim milk to feed.

Mr. Woods. I understand that this question of creamery or no creamery is to be discussed to-morrow morning. Here in Crown Point that question has been up before the people, whether to have a creamery or not to have a creamery; whether it is better to have a creamery or better to ship—the old question, but we have not got a creamery. The fault was that we have had men out here for the purpose of building creameries, but they asked such enormous prices that our people lost all interest.

Mr. Harris. Does it pay to dehorn dairy cows? I am told it is practiced here considerably.

Mr. Merrifield. This is a condition that exists from necessity. It is almost utterly impossible to buy any number of dehorned cows in this section. As soon as you buy a certain percentage that are already dehorned, then you are forced by the condition of things either to give a portion of your herd a decided advantage or else to dehorn the whole of them. Now, I am not prepared to go into this matter scientifically, and I am not an agent for the Society for the Prevention of Cruelty to Animals. There are certain features in the training of live stock that seem to be cruel, and in different instances I have seen tests made that would seem to justify this. I have seen the test made in the case of herds where two or three of the master animals take charge of the herd, drive them away from the water tanks, feed, etc. After the dehorning this condition of things was entirely done away with. They became peaceable and quiet. I have seen animals milked within six hours of the dehorning process, twenty-four and thirty-six hours, with but very little, if any perceptible effect upon the milk quantity. As to whether it affected the quality I am not sufficiently posted in the scientific features of it to determine. But, practically, I say that so far as picking up a dairy is concerned, as is ordinarily done in this section of the country, it becomes almost a matter of necessity to dehorn that portion not already in that condition.

Mr. President. Has anybody had any injurious effects from dehorning? I wish we could get some questions from the back part of the house. I am sure I see a good many dairymen of experience, and would like a little of their experience. Has anybody written questions to ask or put in a question box? I would like to say to you that twelve people from this vicinity have joined this association since morning, and we will be here for fifteen minutes after adjournment in order to give every person an opportunity to become a member of the association. I should be very much pleased to have many more of you come forward and get membership certificate from the Secretary.

Mr. Nichols. I would like to ask if there are any here who take milk to creameries who can give what their herds net per head, delivering milk to creameries.

Captain Jackson. I can pretty nearly answer that question. At the rate that my dairy has been running now for the past three, four, five months past, they will net me from $83 to $85 a head. That is, I am now speaking of the way they have been running for the past few months, and I have no reason to think they will not run equal, if not better. I think Mr. Commons has the figures, exactly, of what I am doing. I made up a statement a few days ago, and if they continue to do as well as they have for the past few months they will bring me over $80 per head.

President. Is that over $80 per head net?

Captain Jackson. That is the amount I put into the creamery. I said a while ago that I considered my calves to pay me more than well for their feed and labor.

President. Are there any questions?

Captain Jackson. I would say further that I can say pretty nearly what my cows have brought me the two last months. Last month within a few cents of $80, 12 cows, and the month before $92, or about that. I feed all dry food, solid food. I mix no water whatever. Don't give them any warm water. In the first place I have a regular ration of crushed corn and crushed cob. I then add about as much bran. I then add to a feed about two pounds of oil meal with all the nice dry hay they can eat. I have been feeding clover, am now feeding timothy. As a rule I think timothy hay the best hay from the fact that clover hay is not so bright as a general thing. My regular ration is ten pounds morning and ten pounds at night. I put in about two pounds of crushed corn, about two pounds of bran and one pound of oil cake. I milk then and afterward I give them another ration of the same kind. Evening ration in the same manner, half before and half after milking, in the same manner. I vary according to condition of cows. If cows are not in condition, I change off to something else. We don't like bread all the time, we want something else. So I give my cows anything that will help their appetite.

Mr. Merrifield. Have you ever experimented with roots?

Captain Jackson. They are a fine food, but a little bit expensive. I work for what there is in it. In my way of feeding I put enough labor to make it profitable, therefore I work for the profit.

Mr. Knox. There is one question I would ask the dairymen here. That is this: Do you feed your cows while milking, or do you milk first and feed afterward?

Captain Jackson. I never allow my cow to be disturbed when I am milking her. I never allow a milker to be angry, curse, etc. From the very fact that that animal hears you swear, she knows you are mad. I don't allow any bad treatment of my animals. If I do, I suffer from it; I don't get my milk. I feed my cows as I say and let them eat their ration clean. They become very quiet, many of them lie down. After that they are milked. We do that as rapidly and as hurriedly as we can. I then give them the other ration. There is another point, and perhaps many of you will differ with me as to the method of milking. When you sit down to your cow, you have got to draw the milk with a dry teat or you will have to wet that teat. Now I do the latter. I do it because I have the best success in getting the milk. It is nature. You never knew a calf to suck without wetting the teat. If I can't do something to beat nature or keep up with it, I think I am way behind. Therefore I invariably wet the teat. The first milk that comes is fit for nothing else, so I use it for that purpose. My cows are great pets and they expect to be pets and they don't want any harsh treatment.

Mr. Bullock. I never feed before milking.

The President. There is a chance for argument on the question of milking with a dry or wet teat.

Mr. Beckman. I think the Captain is right. I have had considerable experience, and we always milk our cows with wet teats. I think it is a cleaner way.

Captain Jackson. I have not a cow on my place that has a lame or dead teat, and this is the way I treat them. Formerly, when I had men who tried to milk with dry teats, they would occasionally lose a quarter. They would occasionally have the cows bruised. I have no trouble in that way. They seem to like it. They seem to know what it is for, and try to help get through with the job as easily as possible.

Mr. Wells. I am not a dairyman, but would just like to say a word to yourself and the strangers here for our county dairymen. Now, we have lots of dairymen here, and they are good ones. They are all hard workers, and making money. Every one of them has a plan of his own, but somehow, when you get them up here and want them to talk, they won't tell their experience. I don't know whether they are afraid you folks will make too much money out of their experience, or what it is, but they can talk if they will. If they would talk as well as when they are home we might get some very valuable experience. I say this for your benefit. Now a word to our dairymen who are here present. I want you, gentlemen, to think that this meeting here is an honor to Lake County, and you ought to appreciate it, every one of you. It is the first time that this association has held a meeting away from Indianapolis, and they come here because they think Lake County is of some importance, and the farmers and dairymen of Lake County are of some importance, and we ought to show these men who are here that we do appreciate it. Now, I don't just remember what President Plumb said it cost to be a member of this association. If I was a dairyman I would find out. It does seem to me that there is not a man in this room with two cows that ought not to be a member. They ought to become members to satisfy the people throughout the State that we do consider it an honor to have this meeting here, and I feel that every man here can afford to belong. Now I have but one cow, but if there is any man here with two cows, and thinks it won't pay him to be a member of this association, if he will put his name down I will pay the dollar myself. I would like to see every man here at this meeting to-night and to-morrow, and tell your neighbors they should come to-morrow and bring their wives along. I know there are some wives of dairymen who can talk if the men can't.

The President. I hope very much that some of the gentlemen that I know are doing a pile of thinking will say something. I hope they will not leave this meeting without feeling that they have gained something. Now, I want to tell a little story. I was once attending a little farmers' institute in a little place in Tennessee, up in the mountains, and I heard there was a creamery out in the woods that made a very fine quality of butter and shipped it away at a good price. and I was interested in the dairymen, as I am now, and although it was in the spring and the mud was axle deep, and we had to go through the woods and drive through a piece of country which was almost forsaken, we went until we came to this little private creamery. The creamery was run by several brothers, and they took the milk from 60 cows among them. It was entirely a private affair. I looked into their methods and I found that they were shipping butter to Raleigh, N. C., and Washington, D. C., for which they received 25 cents delivered at the depot near their home. I had quite a talk with the men that ran the affair, and they had their separator at work. That was the first separator that was brought into the State of Tennessee. Those men knew nothing about the creamery business at the time they got that separator, and they were not skilled dairymen. I said to the senior member, How was it that you took up the business away out here, and even went so far as to bring the first separator into the State of Tennessee? He said the only instruction and information which he got upon the subject was by reading one of the reports of the Northwestern Dairymen's Association. He, living away down there 1,000 miles from headquarters, had learned through a report of the Northwestern Association about the separator, and was making money down there in the woods. So in helping the Northwestern Association and yourself by simply putting a dollar into it, you also help many other dairymen, because 500 of our annual reports, with the papers published, will certainly do good. There is no question about it. I hope you will all join. I think it would pay to have it framed and hung up at home, so your friends can see what you belong to.

Adjourned until 7:30 P. M.

EVENING SESSION.

THE NEW DAIRY EDUCATION.

BY C. S. PLUMB.

In many respects we are creatures of queer tastes, in our desires and appetites, but it seems to be an acknowledged fact that when we first appear upon this terrestrial scene, we have an almost unquenchable thirst for milk. As age comes on apace, we become rather independent in the matter of diet, but we ever acknowledge the superior merits of the lacteal fluid as a food. The most untutored of savages realizes that milk may sustain the body, when all other foods will fail. And so, as people and nations rise in the scale of intelligence and dignity, we find them associating more intimately with their diet the nourishing products of the cow. In fact, a great industry, which we term dairying, is born of this demand for milk, butter and cheese, an industry which to-day represents a capital of many hundreds of millions of dollars.

Every business of importance can grow only through intelligent study and application on the part of some of those persons identified with it. This applies to both trades and professions. The mechanic studies his business, and in time we witness the birth of the locomotive. The surgeon, with probe and knife and saw, searches for the seat of disease, with the result that new facts are gained, and men's lives are saved. The trades and professions are filled with eager students. Trade and business schools are springing up all over the land, and the tendency of the times is to make a study of business.

Is it essential that a study should be made of the principles and practice of an economical production of milk, butter and cheese? Let us see!

In his "reminiscences of the Orient," referring to Turkish dairying, Goodale says: *"The manufacture of butter is infamously bad. The churns used are of various kinds. Earthen jars shaped like a barrel, swelling in the center, are filled with cream, and then tilted up and down. The trunk of a tree, hollowed out and boarded at both ends, is hung to a beam and swung too and fro. The skins of animals, particularly the goat, with the hair inside, are sewed in the form of a bag, and being filled with cream, are rapidly rolled over and over on the ground until the butter comes. The gypsies, it is said, when starting on their journeys, will fill the skins with cream, and sitting upon them, will find butter when they

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* Address before Massachusetts State Board of Agriculture.

have reached their journey's end. It is said that in early times the missionaries used to punish their children by putting them under the table and making them shake a bottle of milk. Sawing the butter is a very necessary operation, and all well provided families have a fine tooth saw with which to extract the hairs from the butter. The natives melt the butter for cooking, and easily strain out the hair. A missionary on the rich plains of the Sangarius tried to introduce a reform in the process of churning. He showed the farmers that in the markets of Constantinople their butter brought less than one-half the price of good English or Italian butter. He tried to introduce the American churn, and the mode of working, salting and putting down. It is needless to say that the attempt was an utter failure. They had always had hair and butter together, and they always would, till death." Do the Turks need a dairy education?

Let us look nearer home. In a log house in a clearing amid the highest of the Alleghanies, in North Carolina, I sat one evening to partake of a frugal meal. On the table before me was a dish of what I supposed to be cottage cheese, so much did it resemble this common table food. But it was not; it was fresh butter, made that day. Yet it bore no resemblance to butter as we see it on our tables or in our stores. Do the butter-makers of North Carolina need a dairy education?

In an article in the *New England Homestead* of recent date (December, 1893), a writer from Vermont, that land of World's Fair premium butter, says: "When we first started out we lost a cow the first winter; also one good large churning of cream which we churned all day, and the more we churned the more it swelled and foamed. We churned two days and gave it up, and looked around for the reason why. We never exactly knew, but we bought a cream thermometer about that time and never had any more trouble." Do the dairymen of Vermont need to be educated in their business?

Do the shut-down creameries through this Central-West indicate that our dairymen need to be educated? I believe so. The butter-hair saws of Turkey, the soft snowy white butter of the Carolina mountaineers, the frothy, obstinate cream of the Vermonter, and the silent creameries of the Central-West, are all the result of ignorance.

In the land of the benighted Turk there is some excuse for this condition of things, but at the present time there is no reasonable excuse for Turkish methods of dairying in the United States of America.

Up to within comparatively recent years, in many important respects, dairymen differed in opinions concerning the handling of milk and making of cheese and butter. Systematic investigations had not been conducted, and as a consequence there was much "rule o'thumb" in the dairy. Under such conditions there was much diversity of opinion on certain questions, which have since been largely settled by dairy investigators. As our population increased, commercial dairying assumed more and more importance, and thinking men saw in it a lucrative branch of agricultural work. The dairy interests grew to great proportions, and the first step taken by dairymen to advance their interests was by forming dairymen's associations, wherein could be discussed problems affecting the business.

The first dairymen's association in the northwest was formed at Elgin, Ill., in 1863. When the agricultural colleges were established, the instruction given was mainly by lectures, and but little work was done in special fields of agriculture. This was the old-fashioned way, where the teacher sat in his chair and delivered long lectures, and the students took notes, and perhaps the same style of instruction was given as occurred in the Latin or Greek lecture rooms. The laboratory was a comparatively unknown factor as an instructional agent then. But the people began to demand special education, and the work of the teacher of agriculture became specialized and was divided, and horticulture was given into the charge of another. Other divisions of labor came, and along with this came the new dairy education. The people were becoming interested in dairy problems, the experiment stations began to publish the results of investigations of much importance, and finally, I think it was in 1886, Cornell University erected a dairy building for experimental work, and adapted to instructional purposes. Lectures in dairying were given at Cornell by two of America's most eminent dairy authorities in their day and generation, Messrs. X. A. Willard and L. B Arnold, some years before the dairy building was erected, but it was left to Wisconsin to establish the first practical working dairy school. So great was the success attained in Wisconsin, that several other colleges in states having large dairy interests established the dairy course as a feature of the school of agriculture. At the present time special courses in dairying are provided in the agricultural colleges of Wisconsin, Minnesota, Iowa, Pennsylvania, Indiana, Vermont, New York, Maine and Michigan. Of these states, Wisconsin devotes entirely to dairying a $40,000 building and equipments, New York a $50,000 building, Minnesota one costing about $25,000, Iowa $4,000 and Indiana $1,500. Dairying in the other colleges is taught in buildings used for other purposes also. At the present time, the course in dairying in each one of these agricultural schools is, I believe, a thorough success, though Michigan is this year attempting the work for the first time.

What is this new dairy education, that it should be especially worthy public attention and commendation? The new education is one which takes the student into the workroom or laboratory and demonstrates to him in a practical manner the truths of the lecture room. It is a combination of the theoretical and practical. If he is taught the principles of churning in the lecture room, he is given the practical application in the churn room of the dairy, where, with notebook and thermometer, he has his cream to churn and his work to do. This apparently simple operation of churning has taught the young man new ideas. He finds he must have the temperature just right, or it will take a long time to bring the butter. And unless the conditions are as they should be, he has not made as good butter as he might, and has left more fat than he should have in the buttermilk. The young man is not only instructed, but entertained, and he feels that he is getting something substantial and useful in his education, that he may put into practical application at once.

A well appointed dairy building for instructional purposes consists of several rooms, in each of which the student finds a special line of work. These rooms are for churns and separators, for milk testing, for cheese making, for cheese curing, for an engine and boiler and for lectures. The best equipped buildings have other rooms for various purposes to make the conditions of instruction as satisfactory as possible. The student goes to the separator room, and after being shown the construction of different forms of centrifugals, is given the responsibility of running them, and taking notes on the efficiency with which they do their work. Milk is introduced into them at different degrees of temperature, and the bowls are revolved at varying rates of speed, so that the best condition may be ascertained. The cream is placed in a ripening vat, and after becoming properly acidified, it goes to the churn, and here the student labors until he becomes familiar to a certain extent with churning temperatures, revolutions for churn, etc.

From the churn to the butter worker is another step, and from the worker to the butter print or tub, another.

In another room, working by themselves, are young men testing by chemical methods the fat content of the daily whole milk used in the school, of the skim milk and cream from the separator, of the buttermilk from the churn, and of the whey in the cheese vat. The work must be watched, and all the butter fat accounted for, and if it is not in the butter, where is it? In the new dairy education it is the student's business to find out.

In the cheese room are the vats where cheese-making is begun, and, beginning here, the ambitious dairy student follows the process down, from the vat, to the pressed, bandaged and greased cheese to be laid away in the curing room. The application of the rennet, the thermometer, the hot iron, the watching of the details of curing, the pressing, bandaging, etc., all these details must be taken up and intelligently studied and investigated.

These dairy schools contain the most economical and modern equipment for conducting the work of a home dairy, creamery or butter factory. The idea is to familiarize the student with the theory and principles in the lecture room, and practically apply these in the dairy work-room or laboratory. It is exactly the same principle of education as is pursued in the medical school, where the student attends lectures one hour, and the next works with the knife and saw in the dissecting room, in operating in the hospital, or in making up doses in the prescription room.

The course of instruction in the dairy school is not narrow. The work extends much beyond a direct consideration of milk, butter and cheese. The number of instructors is not limited to one, but to each subject even, in some cases, is a special instructor devoted. These teachers, be it understood, are not mere theorists, but men who have given much attention to their special branches, such as justifies one in terming them experts. In one school of much reputation and merit, that of Wisconsin, I note the following list of teachers and their duties. One person in each case instructs in the following subjects: The chemistry of milk and its products; physical problems connected with the dairy; the care and management of the boiler and engine; the breeds and breeding of dairy cows; the feeding of dairy cows; the diseases of dairy cows. I also note, in addition to these, one instructor in cheese-making, one in butter-making, two assistants in the cheese-room, three assistants in the creamery, and one instructor in milk testing.

A class of one hundred students is divided into sections of perhaps fifteen or twenty in each. On a given day, one section is detailed to work with the separator, another to do the churning, a third to test milk, whey or cheese, a fourth to make cheese, and a fifth to care for the engine and boiler, and look after special lines of work of various kinds. A good library and reading room is connected with all of the dairy schools that I am familiar with, and this is constantly in use for reference and information. The dairyman abreast with the times reads the dairy papers and is posted on the improvements made in his business, as set forth in books and pamphlets, and in the documents of the agricultural experiment stations that are devoting attention to dairying. So far as my experience goes, the library is a very much appreciated part of the equipment of our agricultural and dairy schools.

A feature of the Vermont Dairy School of special interest is an occasional lecture before the school by a prominent dairyman. In the course for 1894, in that State, the following subjects are lectured upon by dairymen of Vermont: "Building Up a Dairy Herd," "Ayrshires," "Vermont as a Dairy State," "Jerseys," "Dairying for the City Market," "Butter Exhibits at the World's Fair," "The World's Fair Dairy Test."

At Purdue University, in Indiana, this principle has been followed for several years in the Short Course of Live Stock Husbandry and Dairying, only more elaborately, as practical men of reputation have been employed to stay at the university for a full week and lecture daily on subjects with which they are most familiar. This has been a more pronounced feature of the Short Course at Purdue than at any of her sister institutions, and each year's experience has seemed to fully justify the expense of bringing in these outside lecturers.

Each of our institutions is characterized by certain qualities or features peculiar to itself, such as may give the school in a measure a special reputation. The Iowa Agricultural College for some years has maintained on a paying basis a commercial creamery, which during the session of the dairy school is used as a laboratory for instruction. The students, of course, secure certain benefits from contact with the practical commercial features that make the instruction of special interest.

All of this work requires the constant application of the student's intelligence and judgment. In the laboratory he is held responsible for the conducting of practical work, and upon his successful manipulation depends, in a measure, the character or quality of a skimming of milk, a churning of cream, a quantity of butter, or a number of cheeses. He is required to act as a judge of the quality of milk, butter and cheese, both as made in the dairy school and sold in the grocery and commission house. Further than that, he must be competent to judge of the qualities of a dairy animal, and be able to point out its defects and merits. In the lecture room, with the aid of the magic lantern, life-size pictures of dairy cattle are thrown upon the screen, which the instructor makes use of to illustrate the points of his lecture. From here the class goes to the stable, where the dairy cow in reality is brought out and studied carefully, and judged by all. In a number of the schools score cards are used, and the student carefully examines the various points of the animal and scores as he thinks proper, after which his scoring is examined and corrected by the instructor in charge, and the student given the benefit of these corrections.

In connection with all this work, the pencil is in constant use by the student. In the lecture room he notes down for further reference the important points of the lecture. In the laboratory cards are provided, on which the various facts of the work are recorded as it proceeds. A good illustration of how this is done may be shown by giving a copy of a blank form "Churning Report" which a student working at the churn must fill out:

CHURNING REPORT.

Date. . . . .

By . . . .

Temperature at which cream ripened	. . . .
Number hours cream ripened	. . . .
Acidity of cream	. . . .
Temperature of cream	. . . .
Number of gallons in churn	. . . .
Temperature of cream in churn at starting	. . . .
Number of churns used	. . . .
Amount of butter color used, viz	. . . . . .
Commenced churning at	. . . .
Revolutions of churn per minute	. . . .
Temperature of room	. . . .
Butter began to break at.	. . . .
Temperature at breaking	. . . .
Minutes churned	. . . .
Size of butter granules	. . . .
Buttermilk drawn at	. . . .
Temperature of buttermilk	. . . .
Fat in buttermilk	. . . .
Temperature of room	. . . .
Temperature of water used in churning	. . . .
Estimate of gallons of water used	. . . .
Pounds of butter from churn	. . . .
Pounds of salt used	. . . .
Temperature of butter at working	. . . .
Time occupied in working	. . . .
Pounds of salted butter	. . . .
Per cent. fat in butter	. . . .
Number of prints	. . . .

Remarks . . . .

This is only a sample of the character of questions the student must reply to in one branch of the work. Cards having similar purposes apply to running the separators, making the cheese, etc., etc. Who will say that a young man working in a laboratory, endeavoring to answer accurately such a series of questions as this, is not daily gaining information and training that will be of lasting benefit to him in the busy, every-day world of business. He is taught to think and investigate for himself. Investigation in the laboratory teaches him to be conservative of judgment, and not to arrive at conclusions at the expense of good judgment.

Still another feature of interest associated with some of the dairy schools worthy of notice, as being a student's creation, is a society composed of the members of the school, which meets every week for the discussion of topics of interest to the members. This is officered by a president, vice-president, secretary-treasurer, and is governed by parliamentary rules of order. Not only are subjects pertinent to the work discussed by the members of the society, but literary entertainment is frequently interspersed with the more practical talks and debates. Students that have never addressed a body of their fellows before, here break the ice of embarrassment, and oftentimes learn to express themselves in a most creditable manner.

What is the influence of this new dairy education, we may well ask? Are substantial, practical results secured? Is the work appreciated?

The class of students taking courses in dairying represents persons ambitious to have a correct knowledge of milk and its products, and of the principles and practices of the dairy industry. In the agricultural college those students pursuing a four years' education take a terms' work in dairy husbandry, which is a part of their required course of study. But that work which I have mainly referred to above, is specially provided for in what is ordinarily termed a "Short Course in Dairying," intended primarily for persons who can only be absent from home or work two or three months in the year. No entrance examinations are held to enter this course, and there is no age limit, below fifteen or sixteen years. Many of the students are from creameries or cheese factories, and are enthusiastic and desirous to learn. Unquestionably the short-course students in the agricultural colleges are unusually devoted to their studies, and have a desire to gain information that must be a pleasure to the instructor interested in his work. When men seventy years of age will leave their work at home and attend college for two or three months in the winter to gain more and better information concerning their business, it indicates that the work being done must have met their commendation in no common degree. And yet, in two of our institutions, men of at least seventy years, have taken the regular instructions, and have not shown themselves second to the other ' boys" in their ability to accomplish good results and stand high in their classes. Not only do the ages of the students range from sixteen to seventy years, but married men also make up a fair percentage of those in attendance. If a desire on the part of the masses to be better educated is a feature of our present-day progress, in no place is this desire more pronounced than in the short course classes in dairying.

What are the results of the establishment of this special school? Those who read the dairy and agricultural journals see many references to the dairy schools and their work. Of unfavorable criticism we hear little; of words of praise, much. Those who have taken these courses are to-day scattered all over the Central-West, and are most prominently identified with the dairy interests. They are managers of or workers in butter and cheese factories that are, as a rule, of the very best class. The influence of these men has been to dignify and elevate the dairy business. They watch the interests of the patrons with a greater degree of intelligence and economy than they did before they took the course in the dairy school. The whole establishment is managed on a more intelligent basis, and the influence of the dairy school student penetrates the neighborhood in a way that is beneficial, to say the least. I dare say, that you will not find a creamery in the care of one educated in a dairy school, where the milk of everybody is bought on the same basis, without reference to its butter-fat contents, so that Mr. Jones, with his two per cent. butter-fat milk, will get just as much for it as Mr. Brown with his five per cent. fat milk. A dairy school man is educated in a way that will enable him to demonstrate the profitable and unprofitable methods of the dairy business. He does not test the temperature of his cream with his finger, neither will he consent to purchase milk for the creamery excepting on the relative value plan, paying each man for his milk according to the amount of butter fat in it.

The proof of the pudding is in the eating, and the value of the dairy school is shown in the usefulness of the men educated in them. The demand for this instruction is so great that the schools are, in some cases, obliged to turn away applicants, and on every hand the attendance is most encouraging. "The demand for skilled butter makers is larger than the supply," says the circular of the Vermont Dairy School, and I believe this must be true, if I can judge by the applications which come to me to recommend men for such positions. An employe of Purdue, a former dairy school student, has just left us to accept a situation as a manager of a creamery in Nebraska, at a salary better than that earned by many professional men, and the demand for such men can not be supplied at the present time.

Every man, who has a just pride in his business, should endeavor to become as familiar as possible with the factors which bring to him the greatest ultimate success. The dairy school will assist the dairyman as will no other agent, and if he can make it possible to attend for one term there will never be regret for the time and money spent, if earnest attention is given to the work. It is not unreasonable to assume that creamery stockholders could, in the end, put money in their patrons' pockets many times over by sending their manager, or butter or cheese maker to a first-class dairy school, at their own expense, to get as well posted in the business as possible. The cost is small. All the necessary expenses of board, rooms, etc., in one of the best schools, having a term of four weeks, is given as but thirty dollars ($30.00), while the authorities of another school, giving a course of twelve weeks, places the necessary expenses of the course at sixty-eight dollars ($68.00). Last year, at Purdue University, we had students take the entire course of eight weeks for forty dollars ($40.00), including car fare from home and return, although fifty dollars ($50.00) would be a fairer estimate.

We are living in a pushing, hustling age in all departments of industry. The economy of business is studied as never before, and every possible scheme is considered to improve and perfect methods by which better results may be secured.

The little details of business are no longer thought unimportant—they are often considered the essentials to success. The dairy industry is moving along in this march of progress, but straggling along feebly in the rear is a contingent that soon ought to be but a corporal's guard. During the past few years dairying has made wonderful progress in America, and it behooves us all, as dairymen, to use every effort to see that this movement is not allowed to lag for an instant in the future. One effective aid in the accomplishment of this progress may be secured in the education of our dairy and creamery men in the special schools established for their benefit, whose very existence is dependent upon their patronage.

OUR COWS.

BY C. B. HARRIS.

The first cows that were imported into the American colonies were landed at James River Plantation, in Virginia, in the year 1607. They came from the West Indies, and were the descendants of the cows taken to those islands by Columbus on his second voyage in the year 1493. Just four hundred years after the last mentioned date their further descendants were on exhibition at the World's Fair Columbian Exposition in Chicago, and it is a great pity that Columbus was not there in the flesh to see and catch on to the improvements in the different breeds. As it was impossible for Columbus to be at the Fair, the Fair managers did the next best thing, and that was to import a descendant of his to see and act for him. Whether or not such importation was an improvement on Columbus, the Fair managers sayeth not, and they probably do not know. If they do know they do not speak out loud about it. Neither is there any record that we have been able to find in the columns of the "Breeders' Gazette," "Hoard's Dairyman," "Jersey Bulletin" or "Holstein-Friesian Register," that the descendant expressed an opinion as to whether the cows on exhibition at that Fair were good, bad or indifferent, or as to whether there was any noticeable improvements in the breed over those that his illustrious relation is supposed to have milked, or looked after their milking, years before most of this audience were born.

It think it safe to assert that the average Indiana cow is descended from those that our friend Columbus had charge of in that ever to be remembered second voyage.

As I hear no denials of that assertion, then we will take it for granted that such is the case, and that they came from one of the first families of Virginia is assured. They do not bother themselves with improvement and some of their owners think that what they were in the past, are now, and probably always will be, is good enough for them. They keep on year after year; seldom change owners, chew their cud in contentment and patiently wait for the time when they will take a ride on the cars either to Buffalo or Chicago and be made into that universal fashionable article commonly called bologna.

I find it impossible to get the exact date that cows were first brought into Indiana. The oldest inhabitant tells me that they were here when he got here, and that was seventy-five or eighty years ago. He tells me that his parents came from old Virginia, and that they brought cows with them, and that they had an awful time getting here. The cows were terrible healthy and hardy, and were the only ones that did not have the shakes except the old white horse and the old white mule, and that the cows outlived the horse and the mule, and it is a wonder that they did not outlive him, and he allowed that they would have done so if they had been of the new-fangled kind that makes a thousand pounds of butter a year, and that a cow that makes that much butter from Christmas to Christmas never ought to die, and he reckoned that they wouldn't. He did not know to what breed the cows belonged that they brought to Indiana, and he don't care; that he don't know any person that does know or care except those experiment farmers at a place called Purdue, and he don't know nor care where that place is.

So you see that we are left somewhat in the dark as to what breed the average Hoosier cow belongs. It is often that we hear that she belongs to the Penny Royal, Dung Hill, or Scrub breed. It matters not whether she belongs to either or all of the breeds named, as we are satisfied that she comes from a very old family, has been here for years, and that her predecessors were discovered by Columbus. Why not merge the three breeds mentioned into one and call them the Virginia. Now let us see what this Virginia breed of cows is good for. They are on record as not being profitable milk producers for a milk route. They are on record as not being able to produce butter fat enough in their milk to make them a profitable butter cow. They are on record as not being able to put fat enough on their carcasses to pay for the feed they consume. They are on record as being abundantly able to eat their heads off. They are on record as being able to furnish a hide from which the tanner can make leather. I see no reason why they can not be put on record as being valuable after death for fertilizing material, and their bones can be dried, baked and fed to chickens, which will lay enough eggs more on account of the bones to soon pay for the carcass. The quicker that the farmer or dairyman gets rid of the Virginia breed of cows, the better will it be for him in dollars and cents, as they eat more and bring in less product from which to make money than any other breed of cows that the Hoosier dairyman knows anything about. The Virginia breed of cows has been bred for the purpose of making them unprofitable.

It is hardly necessary for me to inform you as to what breed of cows some of our dairymen are using, as you can get that information at this time a year from the car windows while speeding across the State to this meeting. You undoubtedly saw the cows grazing complacently, in the dairyman's mind, off of snow, ice, corn stalks, straw stacks, and what little grass showed itself above the snow, or they were standing behind the barn, shed, straw stack or little neck of woods, using every endeavor to keep themselves from freezing, and getting ready to eat twice or three times as much food after they are put into the stable as they would have eaten had they not been turned out for exercise, water, or to make them hardy. But do not imagine for an instant that the individual Hoosier dairyman, because he is hardy, has not got a good warm shelter for himself, to which he can run when the wind whistles around the corners of the house or barn, for he has, and he does take advantage of that shelter, and he also refuses to drink ice water when he does not want it. He, however, does seem to be in complete ignorance of the fact that he would have a better shelter for himself and his loved ones if his cows were in a barn which has plenty of light, plenty of ventilation, with no cracks for the winds to whistle in, and plenty of milk-producing food at their command, with a good supply of water at a temperatare of about forty-five degrees to drink when they want it. He does not seem to want to understand that with such a place as that in which to keep his cows he could keep a less number of cows for the amount of product sold than he does under the old unchristianlike way. A cow should be obliged to work for her meals only as far as masticating her food, and no further.

Many dairymen in Indiana have the Virginia breed of cows. They also have the Holstein-Friesian, Shorthorn, Jerseys and Guernseys, either registered or the grades of these breeds. I know one prominent dairyman living near one of our large cities that has a milk route which is supplied with milk gotten from grade Herefords, and he says that he is well satisfied with the returns that he gets.

There are in the neighborhood of 700,000 cows in Indiana. What proportion belongs to any one of the breeds named I am unable to state, but from our statistics I judge that the Virginia breed many times outnumber all of the others put together, as the statistics also show that the average butter production of each cow does not exceed 75 pounds a year.

The dairyman has in proportion a larger number of butter cows than the farmer. Why is it? Because the dairyman makes the cow a study, and to make his dairy profitable he must weed out the unprofitable ones, and he is doing it slowly but surely. The farmer makes, or ought to make, his farm a study, and about the last thing he studies is the cow, and the consequence is that he is slow, but not sure to get rid of an unprofitable cow.

I do not advise the dairyman to adopt any particular breed of cows for use in his dairy, but I do advise him to adopt the cow that gives fat enough in her milk from which the churn can make at least 300 pounds of butter every 365 days. That is, if he is making butter, or selling his milk to a creamery for the amount of fat that there is in the milk.

What is the best breed of cows for a dairyman to make his dairy profitable? I answer: That depends altogether on how the product is disposed of; whether it is disposed of as milk or whether it is disposed of as butter fat.

The Holstein-Friesian are especially a milk-producing breed. The cows of that breed give more milk than do the cows of any other breed.

The dairyman that has a milk route and sells milk to consumers gotten from Holstein-Friesian cows can keep a less number of cows than he would be obliged to if he got his milk from the cows of any other breed.

The dairyman who sells his milk by weight to the creamery can make m money by selling his milk from a Holstein-Friesian cow than he can from the cows of any other breed.

There are quite a number of Holstein-Friesian cows that have shown themselves to be great producers of butter fat, but as a breed they have been bred for the production of milk. The Holstein-Friesian cow has the reputation of being able to stow away more food than do the cows of any other breed, and she certainly seems able to make milk out of what she devours.

The Ayrshires are hearty and vigorous, and are milk producers as a breed. The milk of an Ayrshire cow is well adapted to milk routes and to be sold to creameries that buy milk by weight. In the eastern cities it is said that the milk gotten from an Ayrshire cow is in greater demand for food for babies than is the milk of the cows of any other breed. Indiana is chock full of healthy and vigorous babies. Every family has one or more; if they haven't they ought to have; but I have heard of some families having less. Those having them have not brought them up on milk gotten from an Ayrshire, as there are no cows of that breed in this State that I know of. So it is impossible for the Hoosier dairymen to know much about Ayrshire milk, as to whether it is healthier than the milk of any other breed. Such being the case I would suggest that the director of the experiment station at Purdue University, for the benefit of the farmers, dairymen and babies of the State, that he immediately, or soon as he can, secure a few registered Hoosier babies and commence feeding them from the milk gotten from the different breeds of cows, including the Ayrshires, and, as soon as he can, to issue a bulletin setting forth all the facts in the experiment, to the end that we may know for a certainty which breed of cows give the healthiest milk for our babies and ourselves.

The Ayrshire is an easy keeper and used to hard knocks, and is better adapted to outdoor and fence corner picking than are the cows of any other breed. Some few Ayrshire cows have shown great capacity as butter fat producers, but as a breed they have been bred for the production of milk.

There are quite a number of Shorthorn cows in Indiana that have shown themselves to be large producers of milk and butter fat. There is a family of dairy bred Shorthorns that are said to be general purpose cows, whatever that is; but as a fact the Shorthorns for years have been bred for beef. The production of milk and butter fat with their breeders was lost sight of. All they could see was beef, and the consequence is that an elegant dairy animal has been sacrificed for looks and an imaginary idea called general purpose.

What the dairymen need is a cow that will put her food into the pail and not on to the carcass. The cow that divides her fat between the pail and her carcass divides the dairyman's profits between his pocket and the air.

I believe that the Jersey is the greatest producer of butter fat, as a breed, that there is on this earth, and my experience in handling cows to make a profit from them has brought me to that conclusion. I admit that I am prejudiced in favor of a Jersey, but not as a breeder, as my cows were for the past seven years high grade Jerseys. The Jersey has proved herself the money making cow of my dairy.

The dairyman who sells milk direct to consumers can get more money for his Jersey milk than he can from the milk of any other breed. Why? Because the housewife believes that she can get more and better quality of cream for the morning's coffee from a Jersey cow's milk than she can from the milk of any other breed.

The dairyman that sells butter made from the fat gotten from a Jersey cow's milk can get more money from his butter than he could if he were selling butter made from the milk of any other breed. Why? Because the housewife has a notion that the color, grain and flavor of Jersey butter is far ahead of the color, grain and flavor of the butter made from the milk of any other breed.

You all know how hard a job it is to convince a woman that the notion which she has in her head is wrong; and without a woman's notion man's success in the dairy business would be very uncertain. It is infinitely easier to get the Jersey cow than it is to get the notion of Jersey butter not being the best out of the housewife's head. So why not get the Jersey and save the dairyman and farmer and their families the trouble of telling the housewife or the grocer that the butter which they make and are offering for sale is Jersey.

You have probably often heard the farmer and dairyman say that the butter they are selling is as good as that made from Jerseys. You have probably heard the milk route dairyman say that the milk he was selling was equal to any Jersey. Every time that such assertions are made they advertise the Jersey, and it is also an acknowledgment that the Jersey is the best butter and richest milk producer. Bear in mind one fact, and that is, when you hear a person claiming that the article that they are selling is equal to their competitor's that it is safe to set down the article offered to be inferior to the one spoken of.

The dairyman who sells his milk to the creamery for the amount of fat that there is in the milk can make more money from a Jersey cow's milk than he can from the milk of any other breed.

The Jerseys have been bred for the production of butter fat.

The Guernseys are said to be full cousins to the Jersey. They are in every respect as much entitled to the confidence of the dairyman or farmer as the Jersey. It is my opinion that they will soon take rank, if they do not now, with their cousins in the production of butter fat. They are not by any means as handsome as the Jerseys, but it is not looks that the dairyman is after, it is dollars, and the cow that brings the dollars is the one that he will or ought to get. The Guernsey has been bred for the production of milk and butter fat. There is no mistaking the fact but that the Indiana farmer is becoming awakened to the importance of the dairy industry, as there are calls at every institute and farmers' clubs for dairy knowledge. Dairy papers are in great demand and subscriptions to them are freely made. Schemes of one kind and another are continually being hatched to start our idle creameries, which were built before the cows. What we must have, to be successful in dairying, is the profitable cow, and without her we will find profitable dairying an impossibility.

FRIDAY, 9 o'clock A. M.

Prof. Plumb. Before taking up the regular business I wish to appoint a Committee on Resolutions, and I will name as that committee Capt. O. T. Chamberlin, Captain C. B. Jackson, and J. M. Knox. This committee will report before the adjournment. It also seems to me it would be desirable to have a Committee on Nominations. What is your pleasure in the matter.

Mr. Harris. I think we can elect our officers for next year, this afternoon, without any Committee on Nominations.

The President. The organization is beginning to have a large membership, which is scattered over the different territory in the State, and a committee could give the matter more consideration than can be given by electing off-hand, but as the idea does not seem to meet with favor we will go on with the regular business of the morning.

The subject for discussion the first thing this morning is "The Creamery Business in Indiana. Why Have our Creameries Failed, and How May they be Made Profitable?" Discussion opened by Mr. W. S. Commons, of Centreville.

This matter is of a great deal of interest in this country, and I hope there will be a good discussion upon the subject by the various persons present.

Mr. Commons. There are several reasons that could be mentioned why creameries have failed in Indiana, but there are a few prime reasons, and one especially, the most important one, I think, is the fact that the creamery, by fair means or foul, finds its way into a community ahead of the dairy sentiment, ahead of sufficient dairy knowledge and number of cows, and desire on the part of their owners to produce milk and support a creamery. This is the first mistake in the creamery business in this country. The second is the failure to get members to coöperate, and a misunderstanding of the meaning of the word coöperation, and the third feature is the failure to adopt that testing machine, or some other just like it. It is a dictator; it is a barometer, and offers a reward for honesty and industry, and frowns down anything in the way of dishonesty; pays the man for keeping good cows and taking care of them. The fourth note I have made here—somebody's inability to manage, or somebody's inability to make a No. 1 article of goods. That is very necessary. The very highest quality must be made. Now, then, I have told you what has been the cause of the failures, but it is a different thing when it comes to laying down a rule by which these creameries can be revived. It might be an easy matter to lay down a rule by which a new creamery starting up could be made a success. The difficulty is to find out a way in which those old creameries can be revived and made to flourish unless one is acquainted with the surrounding circumstances. To reverse this order of things that I have mentioned here, as near as possible, is one rule that can be laid down to put in operation.

A farmer would not be likely to build a house unless he had ground to build it upon, and in the same sense farmers are very improvident to go and build a creamery unless they have a sufficient number of cows to support that creamery from the start, and knowing that it is the duty of every owner of cows interested in that concern to put every cow to work to produce milk and take it to the factory. There are too many instances where there are three hundred or four hundred cows in a community, and the owners of two or three hundred will stand off to see how it will go. There is the trouble. They don't put their shoulder to the wheel and make it go. They stand off and let two or three men push it. Now, I have been in creameries that were not thriving, and approached the farmers and asked them whether they were doing anything to make this a success, and the majority of them would say, "I am going to wait and see whether it is a success." Just this is what keeps many a creamery on the verge of starvation. I know of many creameries that can not pay reasonable interest on the investment. They are handicapped. In such a condition as this there are abundant grounds for missionary work by the manager of the creamery in establishing this confidence. You must have confidence in the creamery business, as well as in any other. There must be confidence and coöperation. You must do everything in your power to work up that confidence and hold it up. There is one mistake made after we have these creameries. There are too many people influenced by the effect of some other failure. I know of a few creameries that have never turned a wheel, simply because some other creamery has failed, and they feel this burden upon them from the start, that the creamery cost them too much money. I say that is a mistake. They should not sit down and let that burden keep them down. They should get up and shoulder it and make it a success. There is another thing that I think is a detriment to the creamery business. That is the desire of the stockholders to get too much money out of it—too much out of their investment. I don't blame any man for wanting a reasonable return for his investment. I think it a mistake to want more than his money is worth. I know of a creamery in our county where the stock is owned by the people in town. The only interest they have in that creamery is to get a dividend on their investment, while the country people prefer a good, round price for their milk, so that they can produce milk at a profit. I was there day before yesterday. The farmers were going to meet that afternoon to see what they were going to do. They would own it or compel the people in town to own it. They paid 12 or 15 per cent. on the investment; had worked up the receipts to 8,000 or 10,000 pounds a day. To-day they are getting scarcely 2,000 pounds, and still going on trying to get a dividend, which they can't possibly do and live. Now, to say what rule could be laid down to revive one of these creameries; it can't be done. It must be made a study of, and those most deeply interested in the business must find out the best way to get around these difficulties. That must be a study of investors connected with their own concern. They know the conditions, and can study to find a relief. There is a disposition of farmers to think that the creamery has to do all the work. For instance, they get the idea that all they have to do is to press the button, and the creamery does the balance. It is a very mistaken idea. The result of this belief is seen especially in the testing business. They notice their neighbor has a better test, and they begin right away to look to the creamery for the trouble instead of looking at home. Our people are getting over that. They discover the trouble at home and remedy it. It is really more necessary for the farmers to study their business at home in the production of milk and furnishing large quantities of it. It is more essential to the welfare of the farmer than anything else about the creamery business, unless it be some one who is always required to look after the details of the factory, to see that there is no waste. Don't have somebody in there who is cheap, to make butter; a man who makes no study of the yield of the churn, and the loss in the skim milk or buttermilk, will ruin any factory. I would rather pay a good man to see there is no waste in the milk. It is better for the concern.

Mr. Merrifield. Please answer one question before you sit down. Do you adopt, in connection with your creamery, the system of farm inspection? Does your manager visit the farm and the dairy at any time, and if so what sort of an inspection do you have?

Mr. Commons. Have not adopted any method of that kind, only such as we can carry on at the factory. What is thought to be good, pure, standard milk our men at the factory are capable of knowing, and if it does not pass their inspection, if there is any taint about it, any odor, or anything that has a bad effect upon the butter, that milk goes back to the owner. We have some trouble in the fall when we have a good growth of weeds and no grass. We are more liable to have tainted milk in the winter time. The effect of bad treatment of milk left in the stable, or milk left where there is a foul odor, it is very quickly detected at the factory.

Mr. Woods. Do any of your farmers ship milk to the city?.

Mr. Commons. No, sir; that is an industry of which little is known.

President. John N. Beckman, of Lake County, has had considerable experience. Will Mr. Beckman give something of the experience of the creamery at Brunswick? Something about the difficulties they have had to contend with.

Mr. Beckman. I can give you no experience in starting up old creameries. With our new one just started we have had no difficulty whatever. Simply built it and made a success of it. So my experience would be of no value in that regard. The great trouble in sections where new creameries are built is that the people are not dairymen. That generally comes in time. With us we are increasing our dairy a little all the time. The growth is slow, but everybody is making a little money by bringing their milk, and making the factory a little better. You must make it profitable to the milk dealer and he will do the rest.

President. What is the amount of money invested in the plant?

Mr. Beckman. Two thousand three hundred dollars.

President. How much of that went into equipment?

Mr. Beckman. About $1,500 in round numbers. The building could have been built for less, that is a cheaper building would have answered the purpose, it being built on a different plan.

President. How many pounds of milk do you require to make a pound of butter?

Mr. Beckman. That varies, sometimes 26 to 27 pounds. Have used as low as 21 pounds to a pound of butter. Of course we take the milk on the relative value plan. We take the cream for what it is actually worth. We test all the milk that we take in. Sometimes, in sections where they run creameries without that, it is not so satisfactory, because people who have good cows and feed them well don't like to sell their good milk along with a poor quality.

The President. Tell the audience how often you take samples, and how often you test?

Mr. Beckman. We test once a week. In the summer we use an alkali. In the winter it is an easy matter to find the actual quantity of fat in the milk by weighing. Our dividend is made, then the creamery association charges four cents a pound for manufacturing the butter. At the end of each month we know how many pounds of butter we have made. We take out the cost of making. The rest of the money we divide among the patrons according to the amount of fat each man has brought to the factory, and all the money has got to be divided on that basis. We have a little money in the treasury, and probably after this we will be able to pay dividends. Our people don't care so much about this. It is owned by milk producers. All the stockholders are dairymen but one. If the maker does not waste anything eighty pounds of fat will make 100 pounds of butter. Milk tests a little low when taken fresh from the cow. The increase sometimes is 30 per cent. We frequently get 3,000 pounds of butter from 2,000 pounds of fat. In part it is caused by the samples being kept too long and the acids decompose.

Mr. Woods. Do any of your farmers ship milk?

Mr. Beckman. Not from there.

Mr. Woods. Can you pay them sufficiently to induce the sale of their milk to you in preference to shipping.

Mr. Beckman. That depends on the milk. Our milk nets us nearly $2.00 a hundred in the last two months, which would be about $1.40 a can.

Mr. Woods. One reason that we never could get our people to go into the creamery business, is we thought we could make more money shipping milk.

Mr. Beckman. I don't know as to that.

Mr. Woods. We would like to decide this question.

Mr. Beckman. I could do nothing but figure it out. Of course, the skim milk is worth considerable. The actual price we pay for milk does not average quite as high as that paid by the shippers, but then there is the skim milk and buttermilk, which they can utilize. Then we don't require so many cans, and don't have to catch a train every morning. It is not so confining.

Mr. Commons. Mr. Beckman, did I understand you to say milk averaged $2.00 a hundred?

Mr. Beckman. It has for two months. At the factory it tests 5 per cent., sometimes a little over, and occasionally a little less.

Mr. Commons. What price do you figure skim milk at per hundred?

Mr. Beckman. Fifty cents a hundred for skim milk, and from $1.25 to $1.50 at he factory for the buttermilk.

The President. It is estimated that the skim milk of a creamery has a value of about fifteen to twenty cents a hundred.

Mr. Beckman. I think it is worth more than that if properly used.

The President. From what source do you get fifty cents a hundred for it?

Mr. Beckman. A man comes through and buys it.

Mr. Thompson. I would like to ask if this dairy is composed mostly of Jersey stock?

Mr. Beckman. No, sir. There are a number of Holstein herds and other grades.

Mr. Thompson. What is their test?

Mr. Beckman. The factory test is from 3 to $3\frac{2}{10}$ per cent.

Mr. Thompson. What do the farmers do with the skim milk?

Mr. Beckman. They feed it.

Mr. Gerlach. You take this standard at 85 per cent. of butter fat to make 100 pounds of butter.

Mr. Beckman. It makes no difference whether it figures at 80 or 60. It makes no difference how many pounds of butter is made.

Mr. Gerlach. Where do you market your butter?

Mr. Beckman. Wherever we can.

Mr. Gerlach. Do you sell it on the open market?

Mr. Beckman. Mostly open market. We try to get all we can for it.

Mr. Commons. There is one point made by Mr. Beckman's statement that I want to take advantage of, and that is showing the advantages that a creamery has in an old dairy district over one in a new dairy district. Take our county for instance, and the ordinary farmer there is not a good dairyman. The man we have to depend on largely for milk is a general purpose man, and we have to educate him up to the business. There are other men who don't like to milk, and we have to convince them that there is enough money in it to justify them in doing so. I think it is more difficult to make a creamery a permanent thing with surroundings like that than in this. Now our skim milk is all taken back home and fed to pigs and calves and we place a value on it of fifteen to twenty cents a hundred, and I was somewhat surprised at Mr. Beckman's statement that they received fifty cents a hundred for skim milk, but am not so much so now since a gentleman told me that this milk was used in a butterine factory. There is another advantage a creamery has up here under Mr. Beckman's system, and that is in establishing their plant, it does not cost them an enormous sum like our creamery, although we have a very cheap one compared with a good many in our country. Ours cost about $4,000, while others, not any more complete, cost $6,000. While these people have to make a dividend on $2,300, we have to make one on $4,000. You can readily see the advantage of that. Another thing that is a great help to them is the proximity to Chicago. They can throw their product on an open market. We have to depend a great deal of the time on a commission man. Through the winter season we have to depend upon the New York markets and city markets wherever we can find them. I think a creamery located near to any city is an advantage. They become acquainted with the business people there, and if they have an article that is good, they can place that butter in the hands of retailers, and get the benefit of a commission.

Mr. Knox. I would like to ask Mr. Beckman what number of cows you have to support your creamery?

Mr. Beckman. I don't know. I don't care about the number of cows. It is the milk. Some men produce as much again from a cow as others. Never estimate from the number of cows at the creamery. It is the man we want more than the cows. Ten dairymen will keep a factory going to profit if they are the right kind. We had from four to five hundred pounds of milk a day. Number of cows don't cut any figure.

President. Mr. Beckman, do you think a factory that has a very large percentage of Holstein-Friesian cows for its support would give satisfaction, if the price paid for milk was governed by the results of a Babcock tester?

Mr. Beckman. I will say there are two farmers who own very good Holstein-Friesian herds, and they are the men who insist upon the Babcock test.

Mr. Merrifield. There is one feature of this discussion that seems to me has not been touched upon as we would like to have it. These general propositions that apply equally well in all portions of the State are interesting as general facts; but now in this especial dairy district of the State, which has been up to the present time almost entirely tributary to the city of Chicago, the question of the advisability of locating creameries in this shipping district is one that peculiarly affects us, and we are debating, we are pondering, on the subject as to what is the most advisable thing for us to do; whether we shall continue to ship our product into the city or whether we shall interest ourselves in the establishment of this local concern. I have been shipping regularly into the city for about eleven years. I have had a variety of experience, and I think I can speak personally from an intimate knowledge in regard to the circumstances connected with the business of shipping into the city. I have been of the impression for some time that the establishment of local creameries would not only prove to be valuable, but that it was especially important in the midst of this shipping district for reasons. In the first place, we all know who have had any experience in that market that there is a certain period of the year when the market is especially troubled with what we call surplus product; that commencing to manifest itself in the middle of January, and extending on sometimes to the first of July, running from two to three hundred cans of surplus milk on up to 3,500 cans a day over and above the ordinary market demands. Whenever that condition of things occurs in the city it enables the local dealer to demand a reduction in price, because of the presentation of this immense surplus. It has a marked effect upon the city market. Now the establishment of more of these creameries, these local enterprises, would take off a certain percentage of that vexing fact in connection with the ordinary shipments. Then again, I claim that the profits of the average shipper, as compared with those of the average creamery, will show the advantage of the latter. When you charge up to him his lost cans, loss of sour milk, shortage, etc., which occur in that market, it will indicate that the return is better to the man who has patronized the creamery five or ten years, than that given to the average shipper who has consigned his product to the city, and if so, there is another reason why there ought to be more of these local interests established. I am merely calling up these points as a result of my personal experience, and simply because it has seemed to me as though this Lake County gathering here ought to be able to present their own experiences, and say something regarding this subject personally and practically. While I am interested in the whole State of Indiana, I am particularly interested in the condition of the farmers who are engaged in producing milk in Lake and Porter counties, and I want to hear from some of these gentlemen.

Mr. Woods. Mr. Merrifield is right, and that is really the question now before this meeting. Lake County is peculiarly situated, only thirty-six miles from the center of the city of Chicago, and the demand that has sprung up there has induced our people to ship their milk, and that is the only reason why a creamery has never been a success in this part of the country. Now I understand that at Hebron there is a creamery well equipped for making the best quality of butter, and that the farmers insist on shipping their milk. I believe with Mr. Merrifield that after years at a factory we would be better off than by shipping our milk to the city. Lake County, situated so near to Chicago, is naturally adapted for a great dairy region. It is one of the most productive counties in the State for the food that goes to make and build up a dairy. I consider that Lake County excels the great dairy region of Illinois around Elgin. There are creameries on all sides of Elgin, not any farther from the city than we are from Chicago. There are also condensed milk factories, and factories to manufacture and use up milk on the spot. What I want to find out is why we can not have a creamery right here in Crown Point. We have the cows; we have the grass, corn, silos and everything. The farmer could have the skim milk to feed the pigs, and plenty of our farmers have to buy pork. This shipping milk takes the whole thing. Now this is the question we have been trying to solve for the past five or six years. Capitalists have been here and offered to build a creamery, but the fact is the people of Lake County, if they want to build a creamery, can build it themselves. The matter is just as Mr. Merrifield says, just as quick as a creamery is started all the farmers, instead of trying to build it up, many of them hold back to see whether it will be a success. I am convinced that the manager at Hebron is capable of making the butter from double the amount of milk he gets. I think the expenses might be reduced one-half and the stockholders paid a dividend. The fact is, farmers must act on business principles. If they build up an institution right at home they are sure of their money, and there is the advantage of having it at home. You know when you take milk to Chicago, and leave it with milkmen, it is a matter of doubt whether you ever get a cent of your money. The milkmen in Chicago, from what I have heard of them, are a very hard set to deal with. Some one said that a butterine factory bought skim milk, but in justice to the butterine factory I believe they take 100 cans a day from one of our stations. They make a splendid quality of butter at Hebron.

Mr. Gerlach. I think that our friend Mr. Merrifield is correct in saying that the experience that we, as dairymen, have had within ten years, as compared with the experience of the creamery patrons, is very much in favor of the latter, and I claim, from the experience that we milk shippers have had here in Lake County, that it does not require that length of time to find out that it would have been better to keep our milk here and establish a creamery than to send it to the Chicago Milk Association.

Mr. Harris. I believe that every one of the 200 creameries in Indiana would be running to-day if we had the cows with which to supply the butter fat to run them with. That is, if the creamery company had a manager who knew how to run and conduct their creamery. The fact of it is, my friends, that these creameries were built before the cows were ever owned there. That is the trouble in the State of Indiana—that is the secret of the whole business. When I first started in to build a silo, a smooth tongued man from New York came along and wanted to sell me Southern Sweet corn for silage. He told me that the corn would grow ten or twenty feet high and as large around as my arm. When I bought it it proved to be useless. A smooth tongued traveling man came along after awhile, and he talked the farmers into building a lot of creameries. He assured them that there would be enormous dividends. He took them over to Elgin and showed them what they were doing there. The consequence was factories were built regardless of where the butter fat was to come from, and most of these creameries in Indiana to-day are idle simply because the cows are not here to run them. There is the secret of the whole business. The only way to start your creameries is to grade up your herds and make them producers of butter fat. I don't care whether the cow is a Jersey, a Holstein-Friesian or an Ayrshire, just so she gives enough butter fat in her milk to make her profitable. Another reason why our creameries have not been successful is that they take the milk for the number of ounces there are in 100 pounds, regardless of whether there is any fat in the milk or not. The honest man goes to the creamery with his milk and it may test all the way from 3 to 7 per cent. butter fat. The dishonest man gets up in the morning, he goes down cellar and skims a little for coffee, and then he goes upstairs and eats breakfast, and then he skims a little more just to make butter. They take that to the creamery and nobody knows whether they have skimmed off for morning coffee and butter; that milk is sold. They might just as well have gone out to the pump and filled a pail with water and colored it a little, and they would get just exactly as much butter fat from it. That is another reason why the creameries have not paid. Another reason is on account of the unbusinesslike manner of conducting them. Every farmer or every man is not able to run a creamery. The way for farmers to do in order to start creameries successfully is to get together, choose a man they know can manage it, then start a creamery that is well equipped with the very best machinery. Then if you have the cows to run it with you are all right.

Mr. Woods. Does this explain why the creameries around Elgin are prosperous? Is it because they have proper cows?

Mr. Merrifield. With 10,000 cows in Lake County there ought to be enough to establish several good creameries.

Mr. Harris. The trouble is, do those cows give enough butter fat in their milk to make it pay? You have got to have a cow that will give 300 pounds of butter a year in order to make a profit.

Mr. Banks. It seems to me that the important part of this creamery question, as far as it relates to us in this locality, is whether it possibly pays better than milk shipping. The best way to get at it is to compare the profits of the dairy used for creamery purposes and those used for milk shipping purposes. Now, if some of those creameries are willing to give us the amount a cow will make in a year, it will give us a better opportunity to judge whether the change would be profitable or not.

Mr. Beckman. We would like to know what the profit of the average dairy cow is, used for the purpose of supplying milk for a creamery, exclusive of feed.

Mr. Commons. I refer to one patron whose average last year was seventy-one dollars and some cents per head. This is as good an example as I know of, from the fact that it is an average herd of grade Shorthorns. Mr. Jackson has a herd of splendid Jerseys, and we figure his cows average, a year, somewhere near $80, exclusive of calves and skim milk. Of course he realizes a great deal more profit out of his calves than we do ordinarily out of calves from mixed herds. But there is the difference in the two herds. Mr. Jackson has a splendid herd of Jerseys and the other gentleman a splendid herd of grade Shorthorns. I have never made any test on my cows, from the fact that I know I have not a strictly first-class herd of dairy cows. Some of them raise calves, and I don't milk them to their full capacity, so don't know as much about what they do on my place as I ought to know.

Mr. Harris. Supposing a case where a man has a herd of cows—grade Jerseys, or any other grade; supposing these cows will make 250 pounds of butter fat. That is what the farmer sells to the creamery—just the butter fat. They make the butter. Supposing that butter fat is sold at twenty cents a pound. That is fifty dollars for the product—for the butter fat. He has, besides that, his calves and his skim milk, with which to feed his hogs or his heifer calves. He loses all the care and worry of going to the market in the morning with his dairy, hurrying to the railroad in order to get there in time before the train leaves. His horses do not have to be shod so often; there are not so many broken springs on his wagon; he don't lose anything on account of sour milk; he don't have anything stolen from him; he don't lose any cans; he milks in the evening at his regular hours, and he does not have to get up very early in the morning. When you figure this question up one side and down the other I think you will find that there is more money, or at least as much, in selling your milk for the amount of fat that there is in it—not for what it weighs—just as much as you would get by selling it to the dealer. The President asked me, How much do you estimate the cost per day of the feed of your cows per annum? Now, as we have a question after this, Mr. President, of dairy cows and feed, I suggest that this question be put over until that time. You must recollect that you can take this butter fat to the creamery whenever you want to—in the middle of the day or the next day.

Mr. Merrifield. It is requested that some of the gentlemen who have all the facts and figures in regard to the profits of the average cow in connection with the shipping business, shall give some information. These gentlemen have given figures from the creameries; let us hear from the shippers themselves.

Mr. Banks. That fact will be presented in connection with a paper before a great while.

The President. There is one important thing which has not been touched upon in connection with this subject as much as desirable, and that is the fact of a guarantee on the part of those persons who take stock in a creamery that it will be supported. In Tippecanoe County, where I came from, there was a creamery erected at an expense of $13,000. They had petitioned for a receiver, and when I attended a meeting of the County Agricultural Society, when they brought up the question a gentleman got up and moved that $1,000 be voted to establish a creamery in Tippecanoe County, I was astonished. I was raised in a part of the county where the most successful creameries were managed, and the principle has been for the farmers to get together and build their own creameries, with their own labor, and to do the work economically and frugally, and to select their machinery with intelligence, and in almost every case that has come to my observation they have derived good dividends and the creamery business is flourishing in those localities. I know of a county of 4,000 inhabitants and at the present time they have established three creameries by pursuing the same policy and all thriving. If they had followed the policy which has heen established in this State, the whole dairy interests would have suffered. The question of the class of cows I believe will influence very much the satisfaction of the patronage. I received a letter from a friend who is a breeder of Holstein-Friesians, and he is also very much interested with other Holstein-Friesian breeders in maintaining a creamery, and he wanted to know about testing the milk with the Babcock machine and paying for the milk on that basis. I said, if you use the Babcock test in your creamery, I don't believe you will be satisfied with the results; I don't believe it will satisfy your patrons. Whether it was done or not I don't know. The creamery has shut down. One of the most enthusiastic creamery men in this State, a Swiss gentleman, who all his life has been identified with the owner of a large herd of 50 head of Holstein-Friesian cattle, has attempted to make use of the Babcock machine and to sell his milk on that basis, and he was not at all satisfied with its work. He laid the fault at the door of the Babcock machine. These things it will be well to consider.

Captain Jackson. I want to give you a little idea that I have in regard to erecting creameries. The co-operative plan would be my idea; but in the first place when you undertake to get up this company on the co-operative plan be sure to take a guarantee from each and every man that he will furnish you such an amount of milk. Place it at two hundred pounds. If you can get thirty, forty or fifty members in this company at that rate you will have a success. That amount of milk will run you without any trouble. With the outside patrons that you may rake up as you go along will bring you in a very nice profit. This is a safe plan, and without this you are not safe, from the very fact you are now in a shipping district here, where, I believe, if you can get from ten to twelve cents a gallon for your milk, there are many that will draw out of your creamery and ship. That is the death stroke of many of your creameries; where they don't stick to you, where they think they can make a cent or two more by shipping or disposing of the milk in other ways. I am a great advocate of creameries, and a great advocate of the fact that you have all your skim milk. I place that at much more value, perhaps, than any of you, and I will say to-day that I believe every hundred pounds of milk that is taken from the creamery, skimmed and fed to your young stock, is equal to a bushel of corn. I believe it to be equal to that. I have been a user of it, I have tested it pretty thoroughly in feeding my young stock. I feed the best of stock; no scrubs. Whenever you come to scrubs to put good food into you are losing money. Keep up your stock. I have not a thing on my place that will refuse to drink skim milk. I teach my colts and horses to drink it. I have taught everything to drink that skim milk excepting my milch cows, and I believe I will try to turn that back into milk; I will try to utilize it in that way and see how much there is in it. However, there are many difficulties in the way of our creameries. I know of several cases where creameries have been snowed under by the officers. Among the thirty, forty or fifty men that patronise your creamery of course you get some bright fellows that you put at the head for directors, and, if you don't watch them, after awhile they will be so spry in this matter that they will begin to fight for salaries. After they begin to get into that part of the business it is necessary for those directors to meet twice a week, perhaps two or three times a day, which consumes all your profits. Look out for that. There is not enough in it, gentlemen, to go at it foolishly. It is business and you must go at it in a business style.

Mr. Harris. Mr. Chairman, I will ask this question: Would not the continual impoverishing of the land resulting from shipping milk for a term of years amount to a consideration? I assume that it would to some extent. It is hard to tell what the skim milk would bring back on to the land.

The President. That is quite an important item. The amount of fertilizing in a ton of milk is very considerable. I think there is a very large amount of nitrogen in a ton of milk. There are about thirteen pounds nitrogen, eight pounds phosphoric acid, and eleven pounds potash—expensive articles if you buy for fertilizing. One of the great arguments in favor of butter dairying is that nothing goes off the farm but the fat, and that is not a fertilizing material, so there is practically no loss. I am going to suggest that the next paper, the last on the programme, by Messrs. Banks and Bullock, on "Dairy Cows and Feed," be taken up right after dinner. In addition, I would state that I have received in the mail a most interesting paper from Mr. H. C. Beckman, Jr., with whom many of you are familiar, upon "Sweet Cream *vs.* Acid Cream Butter," which I am sure will interest you. There are also a number of questions to be answered.

Mr. Harris. Is it not a fact that the farmers of Indiana, instead of using pure bred dairy-producing or milk-producing bulls, use the cheapest scrub bull they can get, because he is cheap, regardless of what he is good for? I have not the least doubt in my mind but that they do. For instance, take the average farmer of Elkhart County, in which I live. I have a tenant on one of my farms who is a first-class muscled farmer. He works hard. He bought a yearling Jersey. This Jersey was out of one of the best cows I ever had; out of a cow that would make about ten or twelve pounds of butter a week. The sire of that heifer was Imperial 22; his dam was a sixteen-pound cow. That heifer was right in every sense of the word a butter producing animal. When it came time to breed her, I wanted him to breed her to a registered Jersey bull that had just as good a record as the heifer's father. He had to pay $2 for that service. Would he spend that much money? No. So he goes and breeds that heifer to a miserable little dehorned scrub bull, just because he could get it for fifty cents. Now he is not the only farmer in Indiana doing that every day. The farmer must learn to grade up his herd. There are in this county, and there are in every county, good butter-producing and milk-producing bulls. The service fee is only a small amount. Any farmer can get his money back. We ought to consider what we will do with our refuse dairy stock. We have to do something with this refuse stock. They are very easy to keep, and as an all-purpose stock, I think they are best. How will we sell them? What will we do with the Jersey?

Captain Jackson. In reply to that question, I would say for you to do the best you can. If you are grading up, grade up good—don't stop, but advance all the time. Do the best you can. Don't make many crosses.

Capt. Chamberlin. The Committee on Resolutions will report before dinner.

The President. Unless there are objections upon the part of the association, we will take up miscellaneous business and election of officers. It is moved and seconded that we proceed to the election of officers. The matter is now in the hands of the association. The first thing on the programme in the way of electing officers is that of a President. Nominations are now in order.

Mr. Harris. I nominate for President of this association Mr. Bartlett Woods, of Lake County.

The motion was seconded by Capt. Chamberlin.

The President. It is moved and seconded that Mr. Bartlett Woods, of Crown Point, be the President of this association for 1894.

The President. The next officer to be nominated is that of Vice-President. Nominations are now in order. It is moved and seconded that Mr. Charles F. VanNuys, of Franklin, Ind., be the Vice-President of this association for 1894.

The President. The next nomination is Secretary-Treasurer. The nomination is made and seconded that Mr. W. S. Commons, of Centreville, Ind., be the Secretary-Treasurer of this association for 1894.

In addition to the President, Vice-President and Secretary-Treasurer, two others are necessary to make up an executive committee, the duties of this committee being of a nature of some responsibility in case it is necessary to act during the year or make special reports during the session. It was then moved and seconded that C. B. Harris and Prof Plumb be the other officers of the executive committee.

Mr. Beckman. In view of the fact that no provision has been made for paying salaries to some of the officers who have had considerable work to do, I move that the President and Secretary Treasurer be allowed their actual expenses while attending the association.

The President. The motion is made and seconded that the President and the Secretary-Treasurer have their actual expenses of attending the annual meeting, railroad fare and hotel expenses, paid. It is an amendment of the constitution. You hear the amendment. Are there any remarks to be made upon this subject?

Capt. Jackson. I believe it to be just and right that we should pay their expenses.

Mr. Harris. I move that the next meeting of this association be held at Centreville, in Wayne County.

The President. It is moved and seconded that the next annual meeting of this association be held at Centreville, in Wayne County. We have already exceeded the membership of any previous time in the history of the association, forty-two members last year being the greatest number, and twenty-two members have joined at this meeting in addition to the twenty members on the books at Wayne, making forty-two.

FRIDAY, 1:30 P. M.

Mr. Knox. The Indiana State Dairy Association desires to put on record its gratitude to the retiring President.

Professor Plumb. I can only thank you very much for those kind words, which were so unexpected. I feel that I have only done my duty in the matter, and I want to assure the association that my services are just as much theirs in the future as they have been in the past.

Mr. Harris. In connection with this, I want to say to my friends that I am probably acquainted with every person in the State prominently engaged in the business of agriculture, and I must say that our friend, Professor Plumb, has done more to advance the agricultural interests in the State of Indiana than any other citizen.

President. We all know that Mr. Harris has a very exaggerated way of expressing himself at times, and we will excuse him for this. The next subject for discussion is "Dairy Cows and Feed," by Mr. Banks, of Hobart.

Mr. Banks. Mr. President, ladies and gentlemen. We have intended in this paper to give our observation and experience in dairy feed after having been engaged for a number of years in producing milk for the Chicago market. You understand there is some difference in feeding a butter dairy, and feeding a dairy for the purpose of producing milk for market to ship. A Chicago ordinance requires that milk shall be up to a certain standard. The ordinance requires that milk shall contain three per cent. of butter fat or twelve per cent. solids, and as a rule our milk is above that standard.

DAIRY COWS AND FEED.

BY N. P. BANKS.

After being engaged a few years in the business of producing milk for the Chicago market, we have undertaken, in this paper, to give our experience and observations in regard to dairy feeding. You understand, of course, there may be some difference in feeding a butter dairy and one for the purpose of milk shipping. A Chicago ordinance requires that milk shall be up to a certain standard, and while our milk, as a rule, is above that standard, after we are safe as regards quality, the main object is to get the quantity. We consider the pasturage question a very important one, although the chief expense of dairy feeding comes in the winter.

Our pasture grasses comprise several varieties, the principal of which in this vicinity are red and white clover, timothy and June grass; and while timothy is the old stand-by for both hay and pasture, we consider that clover produces more and a better quality of milk than timothy, although timothy is the most palatable and is taken in preference to any other grass we have, and June grass, although it makes good pasture, is of little account for hay.

If we were to go into dairying to the exclusion of grain raising, except for the silo and green feed in the fall, we would, in most instances have our pastures sodded with June grass in a very few years, as timothy is quite sensitive to the tramping and gnawing of cattle, and red clover particularly so.

It is a pretty general custom in this locality to use the summer pasture in connection with all the meadow land, after haying, for fall pasture, and when all this fails to furnish satisfactory feed, to fill in the deficiency with green corn.

Now, the most of us are not in the dairy business for the fun there is in it. and we have attended this meeting to find out wherein we can improve our present methods, so as to make our profits greater than heretofore. So we wish to raise the question in regard to pasturing. Whether it is to our interest to continue pasturing the whole farm, and injure the meadow, as all dairymen must know pasturing will do, or protect the meadow and plant enough corn to fill in the pasture shortage with green corn.

In regard to green corn for fall feeding, our experience is that a large variety of sweet corn is the best. It produces most milk, is the most palatable to the cow, and gives the milk a better flavor than any other food we have used; green clover and ensilage coming next in order for flavoring milk. If green feed produces milk cheaper when we can get it, the closer we come to it when we can't get it, the better we are off; therefore, early cut hay, and ensilage, made from ordinary field corn, are the chief factors in producing milk cheap in the winter. Timothy should be cut as soon as, or before, it begins to blossom, and clover as soon as most of heads have developed and before they are one-half brown, according to the old rule.

We are of the opinion that when a dairyman fails to cut hay green, as above described, he has lost one of his best opportunities of producing milk cheap in winter; although it is possible that after more experience with ensilage, we may not consider hay as important a factor in dairy feeding as at present. Our ensilage feeding only extends over a period of a couple of years, and as our supply has been rather limited, there is one point in connection with its feeding, that we have not thoroughly tested. Whether ensilage fed in full, or nearly full, rations, to the exclusion of other rough feed, will produce as good or better results, as when fed in conection with it. We understand, of course, that a cow requires a certain amount of rough feed, and if ensilage contains a sufficiency of this roughness, and not too much acid for the good of the system, it will produce milk cheaper than anything else fed in connection with it.

We estimate that the ensilage from one acre of ordinary field corn that will produce forty bushels will feed one cow, in milk, through the winter. When we compare the cost of this six and one-half or seven tons of ensilage with that of the hay and grain, or mill feed necessary to feed a milking cow through the winter, it is plainly in favor of the ensilage.

A statement of feeding my own dairy and the proceeds from it during the past year is as follows: For a day's ration for one cow, so far the present winter, I have given about twenty-five pounds of ensilage, divided into two feeds, and fed night and morning; of ground oats and corn—one part corn to five of oats—about five pounds, fed in the morning. If the day is fine they are turned out and given some corn stalks to pick over during the day, and in the evening given all the timothy hay they will eat during the night, but if the weather is unfavorable they are turned out twice during the day for water and exercise; the balance of the time they are kept in the barn and given as much hay as they will eat.

Last winter they had about the same ration of ensilage, clover hay instead of timothy, and perhaps five pounds of bran or malt sprouts daily.

My dairy has averaged eighteen cows during the year. I have sold 1,608 cans of milk, or an average of 89⅓ cans, or 714⅔ gallons per cow, at an average price of about 86 cents per can, net, making a total for milk of $1,380.80; have received, for calves, $60, and have sold three cows for $80, and bought three for $77, leaving $3 to my credit, altogether making a grand total of $1,443.80, receipts from the dairy of 18 cows, or $80.22 net profit per cow, not taking into account the cost of feed.

Mr. Bullock has in his dairy 35 cows. His system of feeding up to the present time—this winter—has been about 25 pounds of ensilage for each cow daily, divided into two feeds, with about six pounds of ground wheat and oats, and all the mixed clover and timothy hay they will eat. His cows are kept confined in the barn, except on fine days they are turned out for a short time for exercise. He put the Buckley watering system in his barn about the 1st of November and believes from his experience so far, considering the amount invested, it is the greatest improvement in the dairy business he has yet found. Last winter his feeding varied considerably from the present, in this, he used about five pounds of bran daily with the ensilage instead of the ground feed, and toward spring, finding he was going to have a surplus of ensilage, he increased the ration of it until the cows took a very little hay, with a very perceptible increase in the flow of milk. His dairy account for the year is as follows:

Number cans milk sold from 35 cows	3,044
Average number of cans per cow	87
Number of gallons per cow	696
Average price per can, net	$0 91⅔
Total amount for milk	2,796 60
Amount received for calves	127 53

During the year he has sold 17 cows for $448.50, and bought the same number for $507.50, making him debtor to the amount of $59.00, taken from the receipts, leaves the income for the year from 35 cows $2,865.13, or an average profit per cow of $81.86. We have made no account of the cost of feed.

DISCUSSION.

President. The subject is now open for discussion.

Mr. Woods. In this ninety-one and two-third cents a can, is freight considered?

Mr. Banks. That is the net price of the milk, the freight taken off; fifteen cents a can deducted for freight. The only question with us is to what extent we can increase the ration and still get as good results as we do from what is already fed; whether there is enough of the rough feed in it, and not too much acid or anything else that will work to a disadvantage. We put corn in the silo when it is just beginning to glaze. Too green corn makes a poor quality of feed.

Mr. Harris. Would it contain less acid if it were entirely glazed before putting into the silo?

Mr. Banks. It would. Do I understand, Mr. Harris, that you let it glaze as though you were going to put it up to shock it in the field?

Mr. Harris. No, sir; not quite so much. I want it just so that the corn contains all the nutriment. When it is in the glazed state then it contains all the nutriment in the stalk or in the corn. This is the experience of men who are feeding silage. For several years I put it up as you did and got a little acid, but when I had the best results I put it up a little riper than that.

Mr. Banks. Do you know of a case where a dairy of cows have been fed exclusively on ensilage?

Mr. Harris. Do, sir; I do not.

Mr. Banks. Do you think it would answer to feed it that way?

Mr. Harris. I think a cow must have a change. Do you feed corn in the summer time?

Mr. Banks. Never.

Mr. Harris. Do you not think you would get a greater flow of milk?

Mr. Banks. I know we would.

Mr. Meredith. What is so-called dry ensilage?

Mr. Harris. Nothing more than corn fodder cut up fine and fed to the cows. What do you estimate the cost of the silage, Mr. Banks, per ton?

Mr. Banks. By the ton we estimate that an acre of corn, ordinary field corn that will produce, say, forty bushels to the acre, would make somewhere near seven tons of ensilage; the more corn you have in your silage the better quality.

Mr. Harris. What do you suppose is the cost of this ensilage?

Mr. Banks. Can not tell exactly. I presume it costs about $1.50 per ton.

Mr. Harris. I estimate from the time I commence plowing my land until I get the silage in the silo, that includes every expense—the interest on the land, the silage and every conceivable expense that I can rake and scrape together—and I figure that silage costs me 72 cents a ton in the silo. Now, I have here silage estimated all the way from 60 cents to $2.50 per ton. Even at $2.50 it is the cheapest food. I pay my hands one dollar a day. I count every team as costing me, with a man, $2.00 a day. I count their meals as costing me 12½ cents. With all expenses figured in, as near as I can make out my silage costs me 72 cents. Now, with that silage I feed one pound linseed oil meal, old process, and for a change I give them oats and pea meal ground. I estimate that a cow costs me for keeping her 365 days, for her food alone, $14.00.

Question. Would the quantity per acre reduce the price?

Mr. Harris. Of course. I feed all the oat straw that I can give my cows. It is always before them. I consider there is more money in that to me as a dairyman than there is in clover hay, and the cheapest food that I have found. The rough feed is oat and pea straw mixed. It is an excellent producer. In feeding this my milk flow increases over 15 per cent. Now this cost of feed is the absolute cost. I count pasture at $5 an acre. I count the amount of ensilage I feed a cow $3. It is estimated that a cubic foot of settled ensilage contains about 40 pounds.

Mr. Nichols. How many tons per acre do you figure on?

Mr. Harris. About 20 tons to the acre, on that basis. I have had 15 tons and have had 20 tons, and some years ago a good deal less than that. But when you follow it up year after year, and get the corn that you want for silage there is no reason why you can't count on 20 tons per acre. I can not make the cost any less than I am telling you. I estimate that a cow costs me, with my help in addition to this, about $22 a year, making the total cost of a cow somewhere in the neighborhood of $36. That includes everything. I use the largest ear and largest stalk of corn I can get.

President. Are there any further remarks upon this subject? Have any of our friends over there in the audience had any experience with silos? I should like to hear from some of the people in this vicinity, as to what has been their experience and their success with silos.

Mr. Sykes. My experience with the silo has been highly profitable and satisfactory. I would recommend them to any one in the dairy business.

President. Tell us how your silo is built.

Mr. Sykes. My silo is not a model. It has a brick foundation, 2x8 studding 16 inches apart, 27 feet deep in all. It is wadded up with common boards on the inside, then tar, then matched lumber, which makes a tight wall. It is 18 feet square on the inside, and the first season I filled it I found before I got to the top that I did not dare go any further. It is not altogether satisfactory; there seems to be too much spring in it, but my ensilage kept nicely this season.

President. It might be a good idea to have two or three iron rods from the center of it. I have heard of cases of that kind that are very satisfactory.

Mr. Sykes. Of course that would do the work, but my opinion is that it would not be advisable.

Mr Woods. I look upon this paper of Mr. Banks and Mr. Bullock as a very valuable one. It touches the very question that determines whether we can make anything out of our dairies. This question of feed and expense of feed will solve the whole problem. I know in this audience there are many men that are well posted on the results of feeding silage, and they should come forward and ask questions and bring out all the facts in this matter of feed.

Mr. Harris. I understand that there are quite a number of feeders of timothy hay, and I would like to hear from some one as to the results of feeding timothy and clover hay.

Mr. Merrifield. In answer to Mr. Harris' inquiry on the subject of timothy, I have been waiting for some one to answer that inquiry who has had experience with what we denominate first-class No. 1 timothy as a food product. Now, we produce annually on our farm from three to eight hundred tons of timothy hay, but we have not produced a ton of clean timothy hay for twenty years. We have always sown a proportion of about one-third to two-thirds clover—one-third clover, two-thirds timothy in seeding. Now this mixed product has constituted the principal article of food with my dairy. I have fed that for a longer continued period than any other article of single food. My experience with clover alone has been somewhat limited. I have only made two attempts to raise clover alone. One season the common small clover, another the big clover as we call it—large red. The large red was almost a total failure, owing to the rapid growth and the fact that it fell down, so that the larger portion was spoiled. The small clover was almost a failure from the same cause. I have neighbors who produce clover more or less season after season, and I venture to say that as a result of ten seasons there have not been more than two seasons out of the ten in which there was anywhere near a first-class quality of No. 1 clover hay. Up in our locality there is not one in ten successive seasons that could present samples of first-class, No. 1, thoroughly cured timothy hay. On account of this experience I believe it to be a fact that in our section, notwithstanding the admixture of clover, this timothy hay constitutes the No. 1 hay that we sell in the market. When we sell our hay it ranks as No. 1, notwithstanding the fact of there being this percentage of clover in it. It is the only No. 1 hay we have to sell, and we sell ordinarily two or three hundred tons over and above what we feed. This added to the fact that it is almost practically impossible for us to cure and present it in a proper shape to our animals, the clover product independent, and for this reason I prefer to depend upon the mixture of timothy and clover.

Mr. Banks. Mr. Merrifield, speaking about growing hay brings up another subject, and that is, how much does hay need to be cured to make good hay? My experience is that you can cut either clover or timothy in the forenoon and put it in the stack or mow, if it is good, bright day, and have better hay than to have it lay in the sun for two or three days.

Mr. Thompson. I have had no experience in this matter myself, but have watched a neighbor of mine who cured clover hay. He had plenty of barn room and he took care of his straw. He cut the hay when it was green; cut it in the forenoon, put it up in the afternoon, and he put as much dry straw as he did clover, and this made good feed.

Mr. Nichols. Referring to Mr. Merrifield's statement in regard to selling No. 1 timothy with one-third clover, I want to say that we ship to the different markets of the United States, and we fail to find that market where we can sell timothy with one-third clover for No. 1.

Mr. Merrifield. Permit this suggestion. Under ordinary circumstances in sowing one-third clover and two-thirds timothy, as a practical result, so far as our section of the country is concerned, that one-third of clover disappears in about two seasons. The timothy virtually takes possession. So that practically speaking, by the time the field is three or four years old the clover has disappeared.

Mr. Hughes. I would like to inquire of Mr. Merrifield whether he found it profitable to feed that class of hay to dairy cows?

Mr. Merrifield. Now you are bringing up an entirely different theme; something that don't enter into consideration in connection with the matter, because I am perfectly satisfied that practically I have been doing a number of things that were not absolutely profitable, and that were not entirely justified. I have fed that class of hay season after season simply because it was at hand and because if I did not feed it I was obliged to turn that over into cash and buy something else and haul it to the farm. I am satisfied that I have frequently fed it at a loss.

President. Has anybody ever grown clover and orchard grass together and used it for hay?

Mr. Wood. I have grown clover and orchard grass together. It ripens at the same time and makes a good feed if cut early, but it ripens about the middle of June and this is about the time we can not take care of it. Cut at the proper time with red clover, I think it would make first class hay. As a dairy feed for cows, I think it an excellent producer of milk. I think clover is one of the best feeds that a cow can have. I have been feeding timothy continually with the exception of changing to clover, and the cows have given an increased flow of milk. I can grow clover cheaper than timothy.

Mr. Sykes. I can corroborate Mr. Woods' testimony in regard to orchard grass and clover. As he says, cut in the proper time it makes a very fine food for milch cows, and comparing it with timothy hay it is far superior. It increases the flow of milk. As to quality could not say; have never had it tested.

Mr. Harris. I am asked this question: What is the feeding value of good silage per ton compared with No. 1 timothy hay? A cow will eat four tons of silage in six months. That silage costs me $2.88. We will call it $3. A cow will eat in six months 1½ tons of timothy hay. That is worth $12, market price for timothy hay here now, I believe.

Mr. Hughes. Do you think the No. 1 timothy hay that the market calls for is profitable food for cows?

Mr. Harris. I don't consider timothy hay any kind of a food at all for a cow.

Mr. Banks. As I understand what No. 1 timothy hay is, I don't consider it a good milk producing food. Hay that is cut too green for a No. 1 timothy hay on the market is what I call a No. 1 hay for milch cows.

Mr. Woods. How was it that Mr. Banks only got seven tons of corn in a silo? I would like to ask Mr. Harris whether in an ordinary season it would get ripe or glazed enough for a silo?

Mr. Harris. No, sir. It did not mature. In an Elkhart County paper I noticed the other day a letter from John Gould on the frosting of corn. He says that this last fall his corn got badly frosted before putting it in the silo, but came out first-class ensilage.

Mr. Commons. I don't believe it a good plan to put up ensilage after it is frosted if you can avoid it. I have the experience of some good men who say they have the poorest ensilage they have ever had simply because it is frosted a little. It is better without any frost.

Mr. Harris. Would it not be a good idea to find out what breed of cows the dairymen of Lake County find most profitable for the production of milk?

Mr. Banks. My experience in that line is that there are first-class cows in several of the breeds. Of course, the most of our cows here are grades. Grade Holsteins, Durhams, Jerseys, a little of everything; but as far as my experience goes the best cows I have ever had were grade Shorthorns—the heaviest milkers.

President. Shall we continue this subject?

Mr. Woods. In reference to the peas, you have given us some very valuable information in regard to raising peas and oats, and then you say have them threshed and ground for meal. Why not put them in a silo?

Mr. Harris. The advice which Mr. Madison of New York gave to the farmers last spring at the Wisconsin State Dairymen's Association was for the farmers in July or June to commence growing peas and feeding them. A little later feed more peas. A little later, more. Feed a little later on more peas, and so on. I think this pretty good advice. During the drouth in summer I have used sweet corn. I would advise you to build a small silo to feed your cows in the drouth. I think that will be the cheapest and best soiling crop you can get. I think it would make first-class silage, but have had no experience. My experience has been altogether with corn.

The President. I would reply to that question by stating that clover is a very nitrogenous plant, and it has been the experience in attempting to put the plant in a silo, unless very great care is taken and all things are in right condition, you cannot secure satisfactory results. You may have magnificent clover silage, but unless you get it just right you may ruin all you have, or spoil a great deal of it, but clover does make first-class silage if you can hit it right. It is claimed if clover is put in before it becomes sour or musty it will ensile in good shape. These plants contain albuminous matter, ferment more rapidly than others, and lose a great deal of valuable product during fermentation.

Mr. Woods. Which is the best way to fill a silo—continuously fill, or fill it three, four or five feet, then stop and fill up again in a day or two?

Mr. Harris. I fill my silo two-thirds full and quit. Then I let it settle for a day. Then go at it again and fill it full. Then let it settle for a week. Then fill it heaping full. Then I cover it with about two and one half feet of straw. This gives it the weight necessary and keeps the ensilage in good condition. I have quit treading the sides of the silo. I don't tread it at all.

Mr. Sykes. Please state your reasons for that, Mr. Harris.

Mr. Harris. Because it seems to settle faster there than it does in the middle, and I found out that I had a little more loss with treading than without.

The President. I have here a statement which I presume is intended to be read, and I will read it and have it filed with the proceedings. Mr. H. C. Beckman has sent his paper to be read upon "Sweet Cream *vs.* Acid Cream Butter." The Secretary, Mr. Commons, will read this paper before the association. I might state before the reading of this paper that there is preceding this a paper, you will notice on the programme, by John Boyd, of Chicago, on "Ripening Cream." This subject is now open for discussion. Are there any butter makers in the audience that are interested in this subject. That really completes the programme of the day.

SWEET VS. ACID CREAM BUTTER.

BY H. C. BECKMAN, JR.

This is a new subject, and has had comparatively little investigation, especially in the West, where a market for sweet cream butter has not yet been established. In the East, where intensive rather than extensive farming is practiced, experimenters are always on the lookout for some new departure, where the field is not already full, and naturally this subject has received its share of attention, and in many places the taste of the customer has been cultivated and a demand created, and the first-class article commands fancy prices, in some instances selling as high as a dollar per pound.

In sweet cream butter, as the name indicates, the cream is churned immediately after skimming, before the bacteria have had an opportunity to grow and develop the much-desired flavor or aroma of ripened cream butter. The flavor develops to a certain extent in cold storage, but it never becomes pronounced, and an expert can distinguish between sweet and acid cream butter in nearly every instance.

Chemical analysis made at the Iowa Agricultural College shows sweet cream butter to contain a larger percentage of butter fat, and less caseine and water, though these results have not been corroborated in every instance. It was found that sweet cream butter suffered less deterioration in storage than the ripened cream butter, as will be seen by the average scorings given below:

Churned September 28 and 30, 1892—

	Sweet.	Acid.
Scored January 30	38⅔	34⅔
Scored April 21	37⅔	31

The flavor only was scored, and 45 was taken as perfect.

These results would naturally be expected, because the sweet cream butter contained less caseine, which is the perishable constituent of butter.

The bacteriology of milk and cream is an exceedingly large and complicated field, and at present enough only to cause confusion is known, and it will take years of study and research to put the subject in such a shape that it can be readily understood. However, it is sufficient to say here that there are a number of kinds or species of bacteria which act on milk, and each has its own peculiar effect on the cream and butter. For instance, one form causes the caseine to separate from the butter fat and water, another kind develops a very bitter taste, while still others give to the butter its aroma or flavor. It must not be understood that the bacteria of itself has this peculiar taste, etc., but in its growth and development it liberates certain acids and chemicals which produce these effects.

Thus it is seen that the action of bacteria on cream is not only to develop the flavor, but they also act mechanically, separating fat from water and caseine. This is of great economic importance, as it enables us to obtain a much more perfect separation of butter from buttermilk in churning.

It is apparent that in cream where bacteria has had no opportunity to act (*i. e.*, sweet cream), some provision must be made where a perfect separation in the churn, is brought about by external means. We know by experience that on churning sweet cream at an ordinary temperature (*e. g.*, 62 degrees Fahr.) there is a very large loss of fat in the buttermilk. In an experiment at the Purdue dairy, the buttermilk of a batch of sweet cream, churned at 64 degrees, tested 6.2 per cent. fat. Other samples tested from 2 to 5 per cent. Practically the same thing has been demonstrated at other experimental stations (West Virginia). In these cases the butter "came" in a comparatively short time, ten to fifteen minutes. We find that by churning sweet cream at a much lower temperature a more perfect separation takes place.

Mr. H. B. Gurler, one of the leading creamery men of the Elgin district, finds that a nearly perfect separation takes place on churning *very thick* sweet cream at a temperature of 48 degrees Fahr.

By "thick cream" is meant cream testing high in butter fat. It is obtained by adjusting the separator so that a comparatively small amount of skim milk passes off with the cream, or in gravity skimming, removing little or no skim milk with the cream. In the latter there is always a greater liability of loss in the skim milk.

It is often a very difficult matter in summer to reduce the temperature of the cream to the desired degree, and ice is almost a necessity.

An extensive experiment on sweet *vs.* acid cream butter was made at the West Virginia experimental station, but unfortunately the Legislature closed the dairy department before the commercial side was given a fair trial. They experienced a great difficulty in establishing a trade here.

The method practiced was to churn the sweet cream directly from the separator, first cooling it to ordinary churning temperature, and then running the sweet buttermilk through the separator, taking out all but one-tenth per cent. of the fat. They do not state whether this second skimming was churned again, but presumably it was. It was found here in the Iowa Agricultural College that no butter could be obtained from this second skimming by churning it under ordinary conditions. This method of handling sweet cream causes a large amount of extra work, and this is quite an item in creamery management.

An experiment consisting of nine different trials of sweet *vs.* acid cream butter was made at the Iowa Agricultural College in the spring of 1892.

The following is a summary of results.

Sweet cream churned at fifty to fifty-four degrees, sour cream at fifty-eight to sixty degrees.

1. The yield of butter from sour cream was usually larger than from sweet; in nine trials it averaged three per cent. larger.

2. Sour cream usually churned quicker than sweet.

3. The butter from sour cream usually contained less fat and more water than did that from sweet cream. In four trials the average difference in fat was nearly two per cent.

4. The butter from soar cream usually contained a trifle more caseine than did that from sweet. This was the case in eight of the nine trials made. The average difference was two-tenths of one per cent.

5. The losses of fat in churning, washing and working were less with sour than with sweet cream. In nine trials the average difference was nearly one-half pound of fat per 100 pounds of butter made. This difference was sufficient to make the loss about fifty per cent. greater in churning sweet than in churning sour cream.

6. The sweet cream butter suffered less deterioration by keeping five months (at a temperature of about fifty degrees) than did the sour cream product. The former acquired in a measure the flavor and aroma of ripened cream butter. [These results fully confirm those obtained by one of us in 1890, in an experiment made jointly by the Station and Mr. J. M. Daniels, of Dayton, Iowa. See Bulletin No. 11.]

7. Sweet cream butter did not "take" the color (oil color, Fargo's) as well as did that from sour cream; it was always some shades lighter in color.

One of the most prominent sources of error in experimenting with sweet *vs.* acid cream butter is the fact that very frequently cream which is supposed to be sweet is really more or less acid. In nine cases out of ten cream shows a distinct acid reaction when it leaves the separator in creameries, although apparently sweet. Especially is this true where farmers do not use the precaution they should in cooling their milk before bringing it to the creamery.

Milk will sour in an incredibly short time in summer unless cooled, and in winter, when a " run " is made only on alternate days, and the farmer keeps his milk in the house to prevent its freezing; it is a rare thing, indeed, to have perfectly sweet cream. The writer has frequently tested acidity of cream, and finds that cream direct from the separator, and apparently sweet, contains enough acid to neutralize from twenty to thirty per cent. of its own volume of a normal solution of potassium hydrate. (KOH.)

Cream, at the right degree of ripeness for churning, contains enough acid to neutralize from sixty to eighty per cent. of its own volume of KOH.

Normal cream and milk develope acid continually if at a temperature of 70 to 100 degrees, but a considerable amount may be developed before it is apparent to taste or smell.

This should always be borne in mind in connection with sweet *vs.* sour cream butter.

EXTRACTOR BUTTER.

It will doubtless occur to many of you that by means of the U. S. Extractor-Separator sweet cream butter can be made very easily and cheaply.

While extracted butter is sweet cream butter, beyond question, still it differs very materially from ordinary sweet cream butter, in that it usually contains an excess of caseine, whereas one of the advantages claimed for ordinary sweet cream butter is that it contains a minimum amount of caseine, and, consequently, has much better keeping qualities than acid cream butter. Therefore there should be a distinction drawn between the two.

In general, then, we find that—

1. It pays to make sweet cream butter where a market is established.
2. A large amount of the so-called sweet cream butter is not really sweet cream butter, but is made from cream more or less acid.
3. Sweet cream butter lacks flavor at first, but this develops to some extent in cold storage.
4. Sweet cream butter has better keeping qualities than acid cream butter because it contains less caseine.
5. Sweet cream must be churned at a low temperature, or some other means must be provided to prevent a loss of fat in buttermilk.
6. Extractor butter differs from ordinary sweet cream butter in that it contains more caseine.

There are several questions handed in for answer. I will read them.

Question. Why are the curds in butter, and what is a remedy?

Mr. Beckman. We had considerable trouble with that, and we found that it was caused by the cream settling to the bottom and becoming thick, and by straining the cream it would remove all curds.

Mr. Woods. We always thought that brine took the curds out.

Question. What is the cause when sweet cream has a bitter flavor, and what is a remedy?

Answer. It is caused by sweet and sour cream being mixed together.

The President. I will answer this question. If cows are pastured on grass, after it has been frosted, it seems to be the universal testimony that the butter or cream will be effected by it. Other reasons may be, from cattle getting hold of certain weeds that will effect this bitter. Pastures sometimes contain trees, and when the sprouts come out, the cows eat them, and this frequently gives a bitter flavor to the cream.

Mr. Commons. Last fall during the drouth, we had some milk so bitter that we could not use it at all. After it once gets into the cream there is no way of getting it out. The same flavor is transmitted into the butter after churning, and while there may be some of it worked out by proper tempering of the cream and ripening it, it can not be entirely gotten out.

Mr. Harris. I move that we adjourn.

The President. Is there any other business to come before the meeting?

Mr. Merrifield. Is it the intention or expection to have all these papers or any of them that have been presented here published, and if so at what time and in what form?

The President. Each year we have published all of the proceedings, including these questions and answers and the general conversation. Published each year—58-page pamphlet. Those persons joining this year will receive a copy, and also of this meeting, which will be published in 1894.

Mr. Woods. I desire to say a few words to the Lake County people. I speak as a farmer to farmers. Living forty years on a Lake County farm gives me some confidence to speak to the farmers of Lake County. Now in reference to this dairy association, I wish to say that I consider it an honor for this association to come here. You must understand this organization never before left Indianapolis, and why were they attracted to Lake County? They saw by the statistics that this county was rapidly coming to the front in the matter of farm interests in Indiana. They saw a county of 500 square miles of territory, within thirty-five miles of the great city of Chicago, on the commercial highways, and they said to themselves we will go to that county and they came, and I feel proud, my friends, that they go away highly gratified. They say we have given them the best meeting they have ever had since their organization. I want Lake County farmers to raise their banner high. Remember that you own the soil of Lake County; own a heritage that you may well be proud of. Advancing years tell me that my time has been of the past. When I came here the Pottawatomie Indians occupied this country. They trapped and fished upon the Kankakee and Calumet rivers, and traded their furs at Crown Point. It was then but a hamlet. I have watched and known every advance in Lake County since that time. I have lived through all these scenes, and my sympathies have always been with them. This organization by coming here among us is not only giving us an opportunity to benefit ourselves, but all the people in this country, and I say it is worthy of patronage and success A copy of this entire matter will be furnished to every one who joins this organization, and this costs you but the simple sum of $1. Nothing can be learned without some little expenditure. This copy will contain full proceedings of this meeting; everything that has been said and done. Every question that has been asked in reference to feed, and all those questions have been valuable to you from a money standpoint. It is the process of feed that gives you your profit. Lake County has done well. Fifty-two have joined this association, and I thank you for what you have done. I feel proud of Lake County, she has done so much.

Mr. Commons. Mr. Chairman, since it has been decided to hold our next annual meeting in Wayne County, Centreville, I want to extend to you on behalf of our citizens an invitation to come and attend the next annual meeting, and any member of this association who can come will be made welcome and taken care of. I will take the responsibility of saying that your car-fare will constitute your necessary expenses to any one outside of Wayne.

Mr. Davis I want to say that having induced Mr. Harris and Mr. Banks to remain until the late train, I should like to have the farmers of Lake County get all the information they can out of these two competent gentlemen. So fire the questions at them as fast as you can.

Mr. Nichols. I would like to ask Mr. Jackson, Mr. Banks or any of those Jersey men, what they consider a good flow of milk from a Jersey cow in pounds?

Mr. Jackson. I expect I can answer that question. I weigh my milk once a week regularly from each cow. To be sure it varies quite a good deal, but at the same time you want to know what I consider a good flow. A cow that will yield you twenty pounds at a milking is a very good one.

Mr. Merrifield. What do you consider an average annual yield?

Mr. Jackson. That depends upon circumstances. I have cows that will average over fifteen pounds to a milking—that is a good, big flow—thirty pounds a day. They are no small milkers at that.

Mr. Merrifield. I have been ruminating on this subject of oat and pea straw, and the other incidentals connected with your ration. Now I want to know if you can suggest to me the name of some variety of the field pea that I can sow upon our black loam that will produce a crop of peas that will not all run to foliage.

Mr. Harris. I would advise you to correspond with some reputable seed house.

Question. In regard to these oats and peas, do you sow your oats and peas mixed and raise the crop together?

Mr. Harris. I raise the crop together, but we don't sow them mixed. We sow the peas just as soon as we possible can in April to the depth of two or three inches. Just as soon as they get out of the ground and sprout tolerably, I sow broadcast three or four bushels of oats, and then when they get ripe I cut them just as I do hay, take them into the barn, and grind the oats and peas together.

Question. Is it more profitable to grow pea straw, or peas and oats, than it is clover?

Mr. Harris. The peas cost me $1 a bushel. It has been said that the peas were as good a fertilizer as the clover. The roots are about as long, I understand.

Mr. Gerlach. Do you think it is necessary for a cow to have exercise to remain in good health?

Mr. Harris. No, sir; I don't. In other words, I do. I think a cow gets all the exercise she needs by getting up and lying down. I am looking at this matter in dollars and cents. I have been in the dairy business for ten years. For the first seven or eight years I turned my cows out to water. I have turned them out when they looked as if all four feet were on a ten-cent piece. They did not drink anything, and went back into the barn as soon as they could get there. I have my cows in the Buckley stanchion. There is absolutely money in keeping a cow in the stable. When a cow is lying down, she is secreting fat. When she is out she is losing money to the dairyman. Now, you present a cow's food to her, and she won't move out of that spot till doomsday. I can't say, after keeping cows up six months, that they are injured a bit. On nice days I open the doors of the barn, but they don't go out at all. They just stay right there and go to chewing their food. I don't believe that a cow needs exercise.

Mr. Merrifield. Would you recommend it for the dairymen in this section, or in Indiana generally, to adopt the silage plan?

Mr. Harris. Yes, sir. But I would recommend the dairymen to build the small silo for the feed of cattle during the warm weather. It is the cheapest way, and the safest. I would advise dairymen to feed corn during the warm weather.

Mr. Merrifield. How long will the ensilage keep ?

Mr. Harris. It keeps until it is eaten up.

Mr. Merrifield. In hot weather?

Mr. Harris. If the silo was not opened I presume it would keep indefinitely. I got this from "Hoard's Dairyman." Have had no experience myself.

Mr. Sykes. What method do you use in watering cows in the barn ?

Mr. Harris. I have a hydrant in the barn, and it is high enough so that I can carry water into the alley, about sixty feet. I take a tub, put a hose in the top, and move from one cow to the other. I think the Buckley watering device is the most economical, safe and sure way. This device costs $1.75.

Mr. Sykes. The Buckley watering device works automatically, one basin answering the purpose for two cows to drink out of. The cows can have water at any time. You must keep the windmill in running order. Keep the supply tank filled up. Any ordinary cow barn is supposed to be warm enough to keep from freezing.

President. It is moved and seconded that the meeting be adjourned.

INDIANA SWINE BREEDERS.

The seventeenth annual meeting of the Indiana Swine Breeders' Association was held in Room 12, State House, Indianapolis, Ind., January 4, 1894.

The meeting was called to order by President Joseph Cunningham, of Loree, Ind., at 10 o'clock A. M.

Roll-call by the Secretary, Mr. Cott Barnett, of Logansport.

Minutes of previous meeting read and adopted.

TREASURER'S REPORT.

January 12, 1893.	Amount on hand	$33 00
January 12, 1893.	Amount expended	15 00
	Balance on hand	$18 00

Mr. Beeler moved that new members pay $1.00 initiation fees and old members pay as annual dues 50 cents.

Mr. Beeler's motion was carried.

President Cunningham. I am glad to see so many present to-day, and looking around on your faces it seems that you are all feeling pretty well, and I think no other body of men who get together feel so well as the swine breeders. While we are gathered here to discuss the interests of swine breeders, I am sure the discussion will all be good natured, and that every one will be benefited by it. This is our seventeenth annual meeting, and I believe we can make it one of the most profitable ones we have had.

PRESIDENT'S ADDRESS.

Gentlemen and Fellow Swine Breeders of this Association:

As you have conferred upon me the executive power of this body, I tender you my sincere thanks. Fellow-citizens, coming down to the year 1893 has been one of marked prosperity, considering the threatening pestilence in the way of a corn crop. Many of us have had large and profitable sales, in fact we all have had good prices for our surplus pork. The original country of the hog, like that of other domestic animals of the farm, is lost in the obscurity of the past. Yet ever since history began the hog has been known in a wild state in Asia, Africa and Europe. That the hogs of these countries have a common origin is shown by the fact that they all belong to the same scientific classification, and also by the more important fact that they are fertiled together and continue to produce fertile offspring from generation to generation. While the original of the domesticated hog was only found in Asia, Africa and Europe, yet allied native species are found in America. In Australia, the Polynesian groups and the other Pacific islands, swine were unknown until introduced by civilized people. The same is true of America. The allied species here are not, we believe, continuously fertile with the domesticated hog. It matters little practically how any of the farm animals originated or how they were naturally domesticated over the earth. Of course the question is curious and interesting. It is worthy of remark that of all domestic animals used as food by man the hog is the only one that has preserved his native characteristics unmodified in a wild state. The history of the introduction of swine into America is that they were brought by Columbus to Hispaniola in 1493, and to Florida in 1538 by De Soto. They were brought to Nova Scotia and Newfoundland in 1553 by the French, and to Canada in 1608, and in 1609 they were brought into Virginia by the English adventurers, and eighteen years thereafter it is recorded that their number had so increased that the settlement at Jamestown had to be surrounded with palisades to keep them away. Bringing our thoughts down to the present we are called to remember that Indiana, Ohio, Iowa and Illinois are the four great pork producing States of the Union. We might ask, what has brought such advancement to practical use? It must be attributed to the interest manifested by the swine breeders of this and our sister States.

The Chair. What will be done with the President's address?

Mr. Harvey. I move that it be received as read and placed upon the minutes.

Adopted.

The Chair. Mr. Burkett's paper on "Obstacles to Overcome by Beginners" is next on the programme.

Mr. Burkett. Mr. President, I have not prepared any paper on the subject. I have not given the subject much thought, and am not a very good hand at making an address. However, I would like to hear the subject discussed by the more experienced breeders.

Mr. Cott Barnett. Mr. President, as he is a beginner, why can he not give his experience, and then the older breeders can discuss it?

Mr. Burkett. There are a great many obstacles to be overcome by the beginner. The first, I think, is in the selection of his herd, and I think that selection should be made from the best herds the country affords. The next obstacle he would have to overcome would be the proper care of them. Among these are proper feeding and proper breeding. I have not had as much experience as some here, and I would rather hear from them and learn from them.

The Chair. We would like to hear from Mr. Lloyd Mugg

Mr. Mugg. I would like to be excused from speaking on this subject. I want to hear from the older ones and learn all I can.

Mr. Smith, Windsor, Ind. I don't think Mr. Mugg ought to be excused; he did not make a reasonable excuse. There is one thing connected with this that young breeders have trouble with, and that is the crossing of hogs. There is no young breeder without experience that will not make mistakes. Old breeders make mistakes too. It takes a very careful eye for any breeder to cross his hogs and not make mistakes. By using a careful eye and close observation a man can progress in this matter, but a young breeder has to watch this very closely. He should be very careful, too, in selecting hogs to cross with. Another question is the feeding question. It takes some experience to learn to feed hogs right. He may over-feed in his anxiety to secure fine pigs, and in this way entirely ruin a litter of pigs and sometimes the dam. That is a very important matter. I have been breeding hogs since 1855—not always thoroughbreds—but have always tried to breed high grades.

Mr. Beeler. I am not a fancy breeder, but have been breeding a few hogs most of my life. It takes a good while to learn how to do it. The first thing to learn is how to take care of sows and to feed pigs. The beginner is always apt to over-feed the sows. I have had experience in letting pigs run where they could get all the corn they wanted, and it was a disadvantage to them. I did not always think this way. I used to think that I could not give hogs too much corn. Now I am satisfied that in growing young hogs it is a very easy thing to do. A man must use his own observation in many things. There are a good many things about swine breeding about which you can lay down no set rule. Then, again, different breeds of hogs require different treatment. My greatest trouble has been with cholera.

Mr. Barnett I think it is one of the rules of this association that no discussion on cholera be allowed.

The Chair. Of course this is an obstacle in the young breeders way, but it is an obstacle in the way of all breeders. Another obstacle in the way of the inexperienced breeder is this: That many men overestimate the animals they have on their farms. He puts confidence in you as a breeder, and he asks you to select something that will start him in a good class of hogs. He will not trust his own judgment, but at the same time his judgment may be as good as yours. Well, this man will come to you, or will write to you, and, in a great measure, the man who sells him the stock is really a part of the downfall of this man. He is over-anxious; he wants the best in the land; money is no object at all in his mind. He says he don't care what it costs him, he wants the best, and he sends plenty of money to the breeder to buy the best. Well, he takes the hog home and crosses it with his own hogs, and makes a very bad cross. That cross does not mix with his hogs at all, although he has pretty good hogs. He has spent his money and his time, and built up hopes and prospects higher—a good deal higher—than man can ever get. I know that, when I started in the business, I lived on hope for five years, and looked for something I never got—and that is perfection. This year we may be in pretty good shape, and next year we may not be in such good shape, although our expectations and hopes and judgment have been used in the best way to fix things better next year than this. The old breeders have gone through this, and can stand it, but it discourages the young ones. They get discouraged and say: "There is nothing in this. That man told me this would make a good cross, but it has not made it, and I have worse hogs than I had three years ago." You must work this business from the ground up, and stay with it, and take the thick and thin of it. This is a good subject for discussion—as good as any one on the programme.

Mr. James Riley, Thorntown, Ind. I was very well pleased with my friend's remarks, in that I think the best way for the beginner is to fortify himself, and we have a meeting soon at Purdue which I think would be well for beginners to attend. When a young breeder goes to an old one to buy stock he is too apt to depend altogether on him. But this will not do; he must attend meetings of this kind and fortify himself. If he will attend the meeting at Purdue he will see some subjects analyzed, and he will be better able to depend on his own judgment. At Lebanon last summer we had a Poland-China pig, and at first glance it looked like a good pig, but when we analyzed it we found it just about disqualified. A beginner, if he had seen that, would always look out for these defects afterwards. The beginner must study these subjects and not depend too much on old breeders' judgment. They are likely to be mistaken as well as the young ones. I believe this, though, that old breeders should maintain a strict honesty with the young breeders. They will have to take this work off the old breeders' shoulders, and as the business is now mostly by correspondence we should maintain the strictest honesty. Let the young breeder attend meetings and study journals carefully, and they will post him so he can protect himself.

Mr. Goodwin. Among the several chunks of wisdom in the President's remarks there was one remark that was misleading. He stated that for five years he lived on hope. Well, he presents the best results of a hope diet that I have ever seen, and I don't want the young breeders here to think that they can attain such results from a hope diet. While over-feeding has carried off some underfeeding has carried off more. I think with Mr. Riley, that the young man who goes into this must understand it well if he will avoid many mistakes. He can learn it thoroughly by attending such meetings as the one to be held at Purdue, and by attending fairs and meetings of this kind. The man who will not do this will make mistakes and it will cost him money. The first thing for a man to do when he is going to put money into a herd of pure-bred swine is to go abroad and see these things before he invests. That was a good point made by Mr. Riley about the dishonesty of some dealers. Then when a man has a good herd he must remember that they can not live on hope. Pure-bred swine can not live on such a diet. That is not what they were made for; they were made to give the best possible account of the feed they consume. These are the two obstacles that young breeders first run up against, the selection of a herd and the care of them after they get them. This is a subject that it is pretty hard for any breeder or feeder to express. You speak of the obstacles in the way of the young breeder. What obstacle is there in the way of the young breeder that does not come in the way of the old breeder, too? If I live to be a hundred years old I expect to run up against obstacles. There is a difference between fine-hog breeding and farm breeding. I can not tell you how to handle these hogs because there is an education in it. Every spring that we have hogs farrowed we learn something. As to getting up here and telling the young breeder to follow what answers this spring can't be done, for it might not answer next year on account of the weather.

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Mr. Miller. To avoid over-feeding or under-feeding are two essential points. Many times the pig is crowded to get growth, and it is very injurious for breeding purposes. I think many have bought pigs for breeding that have been over-fed. A pig bought at the fair may be as good for breeding purposes, but I believe a good hog raised on the farm and liberally fed is better than any other. Many young breeders buy hogs and take them home and change the feed and never are successful. One of the most successful hog raisers of my acquaintance, who raised hogs for the butcher's block—and that is the end of them all—said that he had formerly bought from the dealers, but now went to the farms and bought hogs that had taken the range of the lots, not those that had been raised for show purposes.

Mr. Mugg. My opinion is that the pigs should not be fed on cooked feed or too fine feed. Feed them what nature provided for them. If you will study this question and use your own best judgment you will find that to be the case. I have had hogs that were shown for four years at the fairs, and that lived to be seven years old and were good breeders.

Mr. Cunningham. I want to drop a few remarks in reply to Mr. Goodwin's reply to my hope. I want to explain. I was pretty young when I started breeding, and the first hope I had, after I had raised a few good pigs, was to sell them. I hoped that I could sell them. But you know that in a beginning and in a new country, where the farmers are educated to general farming, they are not educated to fancy pigs. Then I hoped that from one year to another I might make an improvement in my hogs. I thought that there should be something about my judgment and my care and my handling that would make them better next year. Well, as I said before, I was young. It is not often that after a man has passed middle age he will start in fancy stock breeding. It is not to be supposed, either, that a man can sell pigs after he has been breeding two or three years like the man who has his trade established. Well, I would get pretty good results one year, and the next try my judgment on the crop and fail on it. Times, however, are different now. A young breeder can start now and do better in one year than we could then in five. Everything pertaining to the hog question is talked about and read about and published and brought up in such meetings as this. We had nothing of this kind then. Now, I will say that the great thing in breeding is stick-to-it-iveness. Stay with it. Be there next year, and the next year, and the year after that. Stay in one line. You can't have Poland-Chinas to-day and Suffolks next year and something else the next. Life is short. You must be found on the place when some one is looking for you. You must have courage and energy. If this year is not good, go on and next year may be better; but if not, the next year may be. There is a living in it any way—that is about all that is in it, that and hope.

Mr. Barker. I think hope is not a bad thing if the President lived on it for five years. I saw him this fall sell $1,800 worth of hogs in two weeks. Now, that hope is a good thing to have, that and stick-to-it-iveness.

Mr. Beeler. About over-feeding pigs; that thing can be done if you just pen them up in a little pen and feed them corn, but give them unlimited range while they are small, and then give them plenty of ground wheat and oats and unskimmed milk, and you are not going to hurt them. I have known hogs eight or ten years old that have been shown at fairs, and they are still valuable animals, because good judgment was exercised in feeding them.

Mr. James Mustard, Broad Ripple. I have not been handling hogs for three years. I have been out on account of sickness in my family; that is what has driven me out, not hyp. But I am going to try it again. If there is any young man here who expects to breed hogs for a business he must stay with it. Don't get discouraged. You must also attend to your business. What would a merchant do if he would go round whittling on other people's pine boxes instead of his own. The only way I can think of over-feeding a hog in to starve him for a week and then feed him all he can eat. That will founder them, so don't do that. You find the man that makes hog raising a success, and you will never find his hogs hungry. Now, young man, stay at home and feed your hogs, and don't be loafing around town; that is not the place for a hog breeder.

Mr. Miller. The first hog I put in was an improved sow. I bred that sow pig at seven months old. She had grown fast, but had all the exercise she wanted, for I have always raised my pigs in a pasture. When she had her pigs—or tried to have them—she could not get them. I had been told that sows that could not get their pigs had to be assisted. Well, with assistance the pigs were taken away. I bred her again and she died. I soon saw that I had bred her too young. That was my experience, and I avoided that mistake, and I never lost any more, except in one instance where the boar got with the sow at an early age, and the sow died. I went to a prominent breeder in this State with the intention of buying a boar pig. He had a number of choice pigs, and one of them had been bred which would not be a year old until June, and it was then just after the holidays. I brought this question up. He said he bred her because she was large and well grown. When that sow came to have her pigs she could not have them, and she died. She was large, and had been kept in a pasture, and had been fed regularly. She was only eleven months old when she died. That was one of the instances where the breeder was to blame. The pig was growthy, but was not developed. Now, this is one of the mistakes that the young breeder is apt to make. I am not a fancy breeder, and I think it should be kept in view that all stock is meant finally for the butcher's block. Now, there is a difference between starving and over-feeding.

Mr. Mustard. I would like to ask a question. Do you feed bran to your hogs during the winter?

Mr. Miller. No, sir.

Mr. Mustard. Well, that accounts for it. I have never had one die in my life. Feed bran mash and you will never have any trouble. It was that more than the age of the sow. I am one of the oldest breeders of Poland-Chinas in the State, and I have never had any such experience.

Mr. Miller. Perhaps you have not bred too early. They should not be bred until they have age enough.

Mr. Mugg. I don't believe in breeding animals too young, but you may take a sow and let her run until two years old and then breed her, and you are just as apt to have that trouble, and perhaps more so. Another thing is in mating your

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male and female. Take a young male and a young female, and on the first litter you are liable so have trouble. The first litter of the male is liable to be larger than any other.

CHESTER WHITES.

BY B. W. HARVEY.

What advancement has the Chester White breed of hogs made in the last five years? This is the theme assigned me. While some of you are breeders of other good varieties of hogs, I am sure you will all concede that the Chester White breed has fairly won its way to the front rank, and to-day competes successfully with any hog on earth.

A recent writer on the Tamworth breed says: "On beholding my purchase, on arrival, it is only stating the plain fact when I say I was disgusted. I have yet to see the man who likes a Tamworth hog at first sight." On the contrary, let me say I have yet to see the first man who is not pleased with the Chester Whites produced now, largely as the result of the advancement made in the last five years in the breed by careful selection of breeding animals, judicious breeding and proper care.

Not only has advancement been made in the form of the breed, in head, ears, legs, ribs and hams, but in his qualities as a feeder. I am stating only the plain truth when I say that in the Chester White we have the hog the farmer long has sought. Because he is easily kept, takes kindly to grass, clover, mast or just plain corn and fresh water; and given any reasonable chance he can be turned over to the shipper any time after four months old, at top prices, and not infrequently at a premium *over any other hog on the market.* He is contented if he has broad fields to roam, or enjoys life hugely in a sty big enough to turn around in—while a pig, and that fits as tight as his hide when fully grown—provided it is kept clean. That the breed has advanced to a place second to none will be plainly evident when you remember that the "originator" of new breeds always includes a large per cent. of the Chester White blood. Have you heard of any one in the last five years—either farmer or breeder—crossing any of the established breeds with the Chester *to improve the Chester?* Perhaps all of you know of one or more instances where Chester boars have been purchased by farmers to cross with sows of other breeds "because experience teaches that we get better hogs that way for market and more prolific and careful mothers." It is not my purpose to detract from the merits of any breed. Each has some merit, and some many, but the Chester of to-day takes no back seat. In the fat stock shows, in the markets of the world, in the competition at the great fairs he holds his place to the front. No fair of merit fails to concede him a place among the prominent breeds.

Perhaps "the public" is not always a safe judge, but you will pardon me, gentlemen, in saying I think it displays its wisdom in showing such a decided preference for our hog. Though the number of hogs of the older breeds vastly outnumbers us as yet, it is a conceded fact that a hog of one of these breeds can scarcely be sold *for breeding stock* at any price, in many localities, and the other is failing at the vital point, to those who breed for profit, that very small litters are the rule, while those of six or seven are called very good. I know of a number of instances where Chester White sows had litters of fourteen, and some of them first litters at that. As mothers, they are careful, prolific, extra good sucklers, and with reasonable care, they can suckle their pigs till three months old and then be fat enough for the butcher. I am not drawing on my imagination, gentlemen, but can prove these assertions.

The public appreciation of the Chester hog is backed by the opinion formed by the young breeders who, after careful study of the merits of all the breeds, in great part decide to breed the Chester swine, and this for three reasons—the perfection of the breed as to meat and lard, its salability for breeding purposes, the undeveloped field for the breeder.

As might be supposed, we find that some of the most intelligent of the men who have handled other breeds, have closed them out and are preparing to come in, financially, on the Chester White wave. One such said to me, recently, "I have owned some of the finest specimens of the —— breed in the State, and made money on them, too, and think they are a noble hog, but I like my Chesters better, *and they make me more and quicker money.*"

To conclude, then, I believe the advancement of the Chester White breed of hogs, in the last five years, has been equal to that of the most favored breed in physical perfection attained, in prizes won, in hardiness, and that it surpasses the rest in the points which we desire in a hog for the masses—early maturity, easy and hearty feeder, lots of fine, juicy meat, and oceans of lard—and it is the hog for the breeder, because it is the hog the people want, and that is one of the big advances the breed has made in the last five years, for it goes "agin the grain" to waste hog sweetness on the desert air. The appreciation shown has been no small factor to incite Chester breeders to make the breed merit all commendations.

Meeting adjourned until 1 o'clock P. M.

AFTERNOON SESSION.

Meeting called to order with the President in the chair.

President. The first thing in order is to be the discussion of Dr. Harvey's paper that was read before dinner, the subject "What advancement has the Chester White Breed of Hogs made in the last Five Years?" I wish to hear the expression of all on this subject.

Mr. Mugg. I do not like to be the first one to say anything. I think it is a first-class article that we have had written on the Chester White pig. Of course I breed other kinds of hogs, but I think it was a good paper.

Mr. Earhart. I have a motion to make before discussing this question farther, and that is that we limit the members to three-minutes talks on any subject.

Motion seconded and carried.

UofM

The Chair. Are there any more remarks in regard to the subject?

Mr. Barker. I think it was a good paper. He praised his own breed without disparaging others. It is a good paper from his standpoint.

Mr. Riley. I think the Chester White is a meritorious breed of hogs. I have had considerable experience in breeding. I think they are a profitable hog, and they are rapidly improving over what they were a few years ago.

Mr. Smith. I think the paper was very fair as far as it was discussed. They want to have a little more uniformity. They are not like the Poland-China. I shall discard them and breed the Poland-China.

The Chair. If there are no other remarks to make we will have the next paper read.

Mr. Sturdevant. Before the reading of that paper, call out these Chester White men and let us hear what they have to say. The Chester White claim that they never had a fair show, even in the ring or anywhere else.

The Chair. Mr. Sturdevant, I do not know who to call out, and it would be a hard matter to call on any one. We want to hear this subject discussed, so don't let the Chester White men be backward in speaking up for their rights.

Mr. Taylor. This is the first time that I have met with you. I came to learn this time.

Mr. Wiggins. This is the first time that I have met with you, and I think it was a good paper, and I also think he has made great improvement in the last five years. Five years ago you could not see a Chester White in the country. Now every man is crossing them. After awhile they will come up with the others, if they get a fair show.

The Chair. May be Mr. Harvey would like to say something else on the subject.

Mr. Harvey. I do not know that I have anything more to say. In regard to the meeting at Purdue some of them had made arrangements there to be scored. I have a sow at home that I will take to Purdue and I will pay charges both ways to have her scored. I sent two of them to Kansas. They were three months old and they weighed 80 pounds each. I do not know whether I will show hogs next year, but if I do, I will not show anything under a year or six months, and if I can sell for a fair price, I will.

The Chair. I believe there will be no objections to take her at that rate.

Mr. Riley. I would suggest that the gentleman take his sow and let her be scored. They are generous and he will not have to pay all expenses.

The Chair. Any further remarks, gentlemen? If not, we will proceed to Mr. Miller's paper.

THE CLOVER CROP IN RELATION TO THE FARM AND SWINE BREEDERS.

BY I. M. MILLER.

The title of this subject is rather a complex question, but one of increasing interest, as the area annually devoted to clover is gradually extending into the middle western States through the growing method of crop rotation and general farming—the acknowledged system for best results yet attained by the most successful farmers in the field of agriculture.

By this method clover becomes an alternate crop with grain raising, producing a very important part in restoring and maintaining fertility to land previously occupied with exhaustive grain crops.

The broad leaves and succulent stem possess unequaled qualities among the great families of grass plants of absorbing or gathering food from the atmosphere —carbonic acid and ammonia—that is carried into the earth by the roots and stored there, which, upon decomposing, affords an abundance of food for the great cereal crops more dependent on their supply from within the soil.

While there is an extensive variety of clovers grown and cultivated throughout different sections of country within the temperate zone, the kind most generally grown here are Common Red, Big English or Sapling, White Dutch and Alsike.

All clovers are considered as perennial, but the common species of the red varieties are treated as a biennial plant under the climatic influence of the seasons and the method followed by sowing about ten pounds of seed per acre at the end of a rotation, usually with wheat or perhaps oats, during the first favorable weather at the approach of spring.

Clover is peculiarly adapted to most all the Northern States, and can be grown successfully in most of them without the aid of manure or commercial fertilizers.

The common red clover makes the finest hay when properly secured, and is considered the most valuable as a fertilizing crop, but ripens at a time when other crops require closest attention, which, with many, is an item of much consideration.

On the other hand, the big clover possesses the advantage of maturing later, and when mixed with timothy for pasture or for hay allows more latitude for harvesting

The Alsike has but recently been introduced in this country, and has a striking resemblance to the little white clover so universally recognized as growing everywhere, but, being larger, has more value, either for pasture or when cut for hay.

Each kind has its especial value, which will perhaps vary according to the plans pursued by different methods of application on the farm.

Usually the successive crops are: first, corn; second, wheat or oats, sown to clover, with perhaps in some instances timothy—to be pastured, mown for hay or seed and oftentimes both.

The last plan seems to be the rule in most instances, and undoubtedly too much is cut for hay and seed for the acreage now grown, as it is only the strongest soil that can produce profitable results any length of time from the too constant taking away of the crop, even be that clover, as certain elements of plant food directly conducive to its own benefit may render that soil "clover sick," or produce an impoverished condition of the land when the last remnant of a crop is clipped and carted away.

According to the last annual report of the agricultural statistics for Indiana, that of 1892, the number of acres devoted to clover hay was 1,174,341, with an average yield of 1.62 tons per acre, that being about an average for acres in the last ten years, and some less than the average yield. This is 35,000 acres less than what is credited to timothy hay, and reported at 1¼ tons per acre.

The acres devoted to wheat that year were two and a half times greater, or 2,654,645 acres; corn nearly three times as great, 3,563,337 acres, and the oat crop came within 70,000 acres.

As the report is silent on the acreage devoted to pasture, it will have to be taken for granted this is to include the entire acreage of the clover crop.

This certainly is not a good showing for the State, as it only represents about one in ten of all the acres devoted to the different cultivated crops grown annually in the State. It seems to me that the acreage ought to be at least double what it now is; not be grown simply for hay or for seed, that apparently becomes so irresistible to many every time a luxuriant growth of twining stems and potent charms of the ornate flower ceases to waft sweet nectar's aroma on the balmy air of the harvest morn. No, indeed. I should prefer seeing a good portion of it converted into higher values where it grew by turning it into the cheapest pork to be made on the farm.

CLOVER FOR SWINE GROWING.

That "a clover field is worth a corn field" was never more true in the history of this country than it is to-day, and the successful swine raiser will have need to combine the grass and corn crop to maintain the fertility of the farm and meet the growing demand of recent years for a quality of pork containing only a reasonable amount of fat, instead of so much grease and oil from an all corn diet. And the best method of producing such meat is to grow and feed them out in the fields occupied with clover arranged for grazing.

Unless proper care is given the young porkers, with a little extra feeding consistent with that most needed, they may not obtain as great weights at the same age as those confined in "dry lots" and fed on an exclusive slop or grain diet, but they will be the healthier by it and not have cost near so much to grow them.

However, two pounds per head for each day during the months of May and June can readily be obtained on clover alone, after the first few days of gradually reducing the feed, as the clover attains more growth and sustenance. But all hogs intended for market should be sold by the time the clover commences to ripen, as the average gain will be less day by day without substituting other feed, and much of the profits be lost.

If too small for market or to be kept longer in a profitable condition, suitably prepared slops should be given them to bridge over the time when clover has passed the flush stage of its growth or until "roasting ears" will do to feed, when they can be gradually put upon the next most profitable feeding, while the corn is in the succulent stage, and as the corn hardens and the feeding progresses for a period of almost ten or twelve weeks on the second crop of clover or a blue grass pasture, a healthier hog, with more and better meat for the least expense, will have been made than can be obtained by any other method in our country.

SOME FACTS ABOUT SWINE GROWING.

Having been requested to prepare an article, a short time ago, upon hog raising, I beg leave to submit herewith some extracts taken from that paper that ought to interest this association on the importance of swine raising in the United States. ranking, as it does, third in the number of animals produced and third in value, For 1891-2 the number of hogs were reported at 52,398,019, placed at a total valuation of $241,031,415. Iowa leads the list for States, producing in round numbers 7,000,000 head, with a valuation of nearly $41,500,000, or at an average price of $5.86 per head. Illinois stands second, with a little less than 5,000,000, valued at $26,600,000, averaging $5.86 each, the same as Iowa.

Missouri comes in third place, nearly equal to that of Illinois for numbers but valued at $10,000,000 less, or $3.58 per head. Kansas is fourth, with 3,000,000, valued at $15,000,000, or $1.18 more per head than Missouri. Ohio fifth, numbering 2,850,000, valued at $13,250,000, or $4.65 each, being 9 cents less than the estimated value for Kansas. Nebraska and Indiana stand sixth and seventh, 2,586,000 head for each State, averaging $5.23 for Nebraska and $4.94 for Indiana, which is valued at $12,787,061. Kentucky, Tennessee and Texas have a little more than 2,000,000 each, averaging $3.86, $3.38 and $3.15 respectively.

The above ten states are all that exceed the 2,000,000 mark, and only seven other states have more than 1,000,000 each, with Georgia in the lead and Arkansas a close second. In the seven first named states, comprising Iowa, Illinois, Missouri, Kansas, Ohio, Nebraska and Indiana, there were 27,823,726 head, or 1,750,000 more than half of all the hogs within the United States and territories.

Wyoming contains the least number, 10,000, Nevada second, 12,000, averaging $6.08 and $6.82 per head. Massachusetts' average rate per head is highest of any State in the Union, $9.80, and Florida lowest, $2.28.

From the above it will be observed that swine raising in the United States principally belongs to the great corn belt, where corn and clover excels that of any other like area on the earth; and believe, in this, it is destined to not only hold the present creditable but surpass all former records.

Some difference is noted in the average value of hogs for Ohio and Indiana as compared with those states further west, which can not be attributed altogether to the market advantages, but probably to greater weights with more age and the greater abundance of corn raised and fed more exclusively there. But, perhaps, in the near future there will be a leveling of these differences as the western states grow older and adopt the use of clover and blue-grass in the economical farm management.

As our ideal method of swine raising lies among verdant fields of luxurious pastures, with present and prospective demands for 200-pound porkers, aside from being excessively fat, think the clover crop in relation to swine raising should be henceforth and forever known as the grandmother and corn bear the cognomen as that of the grandfather.

DISCUSSION.

Mr. Russel. I would like to ask the gentleman about clover on oat ground.

Mr. Miller. I do not think that it grows so rank, but still I have obtained a good crop of clover on oat ground.

Mr. Beeler. I think it is as sure as sowing on wheat ground. I want to say this about the paper, I think it was carefully prepared, as all papers should be that are read before this association. I want to ask Mr. Miller a question: What about the benefit after clover begins to ripen?

Mr. Miller. Hogs will not do well on clover after it begins to ripen. If you had a good clover field, and let the hogs run on one part and give the other part a chance to start, and then change them from the older clover to the new. I believe in this, for when the stems and leaves dry up, it loses flesh. Hogs thrive best when the clover is flush. After it begins to dry they will not get fat so quick. I think corn is as good for hogs running on clover as anything. Roasting ears are good also, as it contains that pulpy substance.

Mr. Beeler. I know too that hogs will improve on roasting ears. It is a good thing to have pigs run on clover while sucking the sow.

Mr. Miller. Yes, it is a good thing to have pigs run on clover while sucking the sow, but a little corn for the old sow is as good a thing as you can give.

Mr. Cotton. I think it pays to cut up fodder to feed them.

Mr. Collins. If it is cut up early, you get this nourishment in the stalks.

Mr. Nye. I think you can get a gain of two pounds a day on clover alone.

Mr. Miller. I have used the alsike clover, and it is the finest kind of feed, but I have heard that it has killed horses, that it is poisonous.

Mr. Robbins. Would you recommend us to sow Alsike clover, or the red clover?

Mr. Miller. I would sow red clover.

Question. In your experience with alsike, have you raised it alone?

Mr. Miller. I sow it as mixed grass. I condemn it because it is poisonous as to horses, and there is no fertility in it.

Mr. Robinson. I have not had experience with alsike alone with hogs.

Mr. ———. I suppose the gentleman thinks if alsike is not good for horses it is not good for hogs. I will say that I have been raising alsike for five years. I had a field of sixteen acres in 1891, and I pastured ten head of cattle, four working horses and five grown hogs and twenty-five pigs on it for four months. None of my cattle were poisoned, and none of the hogs.

Mr. Beeler. I have had some experience in sowing alsike. I think a great deal of it. It does not freeze out, and there is no finer hay made than from it.

Mr. Riley. I regard alsike as a very rich, nutritious plant. I have sown frequently in the fall, and I have stock that will eat it right out and they relish it. I want to make a request. I would like to have all the members who are interested sow a patch of scarlet clover. It is a good kind of clover and is also relished by the stock. More than that, I think that it is good and profitable.

Mr. Beeler. I would like for them to sow in the spring, and by June it will be matured. I regard this scarlet clover as a good honey plant also. The bees work on it in swarms.

Mr. Smith. I sow clover of both kinds by dividing the fields. I sow the alsike clover in one place and the smaller in another, which ripens much earlier. I let the hogs in one patch till they eat it down and then turn them in the other, and they seem to relish the young clover. My experience with hogs in feeding corn is that the hogs will always find the ripest patch in the field and eat it. I think that they like ripe corn better than roasting ears.

Mr. Beeler. About feeding corn: I had a little experience some years ago. I had a patch of corn with some roasting ears along side of it. I went out one morning and stood on a little piece of raised ground to look at that strip of corn. The corn that was soft was the one that they were eating.

The Chair. Are there any more remarks on the paper?

I would like to relate a little incident in regard to clover: There was a man in our county who had 29 hogs—fall and summer pigs. They had been running on clover. I passed there one morning and he told me—I take his word for it—he let these pigs run there until it got ripe. One hundred and twenty-six pounds of hogs were made on that clover. He weighed them in it and weighed them out of it. He asked me if it would not be best to sell these hogs, as they were just off the clover field. There is a gain of 126 pounds in clover without any other food.

Mr. Cotton. Do you know how long those pigs run on that clover?

The Chair. Perhaps more than eight weeks.

Question. How did they look?

The Chair. They looked rather lank to me.

Mr. Cotton. If they had been given a little corn they might have been bigger.

The Chair. If there are no more remarks to make on this subject, we will go to the next question.

Mr. Cotton. I would like to say something more on Alsike clover. You do not want to grow it on thin land, or high land. It has a tender stalk, and if it is not cut pretty early it will mold. It cures rapidly.

The Chair. I would like to ask where that scarlet red clover can be bought?

Mr. Riley. The seed can be got in various places. I would give some instructions in regard to sowing it. Break up the ground, harrow it and prepare before sowing. Sow it on top; do not cover it.

Question How much would you sow to an acre?

Mr. Riley. Sow about fifteen pounds to an acre.

The Chair. Is not fifteen pounds too much to an acre?

Mr. Riley. Well, you might say twelve pounds.

Mr. Plum. I should like to say something here about that scarlet clover. The price, I think, ranges all the way up from $7 a bushel to $15. From our two years' experience with it, we have found that we have to be very careful if we want a good crop. It is a wise plan to sow it in the spring.

The Chair. If there are no more remarks we will pass to the next subject.

CARE OF YOUNG PIGS.

BY I. J. SMITH.

It appears that I have been selected to impart what knowledge and experience I have gained in the care of young pigs. This is a subject that has been discussed and written about until the majority of breeders have become well advised and so familiar with that we feel that we would rather be a listener than make an attempt to instruct. After the pigs are farrowed, the care of sows is very important. We think it best to let her lay as quietly as possible, at least twenty-four hours or longer, if it suits her, letting her have her will; but when she does get up for food or drink we would give water pumped from the well, letting, or rather compelling her to drink it very slowly. This will prevent chilling the system or producing colic. This we think a better way than giving warm water, as it cools the system and allays fever. We would then feed wetted bran, with a handful of oil meal, mixed together, three times a day, with one ear of corn twice per day, increasing as the pigs grow to full feed. We think one-quarter wheat bran and three-quarters middlings, soaked six to twelve hours, with a small amount of oil meal, a most excellent diet for suckling sows—the best we have tried, in the absence of cow's milk, which is out of the reach of most breeders. The bed should be watched carefully, well aired, changed often; if any damp places, should sprinkle with dry slaked lime, and then cover with dry straw. The tails of the little porkers should be carefully watched lest they get sore or crack. If they crack, we use soft grease mixed with mutton tallow. About the safest and surest way is to grease them with lard or any soft grease as soon as they dry, or in a very short time after they are farrowed. The tail of a pig is a very small item in the avoirdupois, a very small item to the body, but how chagrined we breeders are when we have a very fine pig we are expecting, or rather hoping, will score 80 or 90 points. We go to the pen some morning and find it minus a tail; nothing to curl over its lovely back and point to the North Star.

The health of the dam should be watched very closely. Costiveness is sometimes very prevalent in some mothers. They also take cold very readily, which may result in injury to the pig. We generally relieve a costive sow by salting warmed water; giving three times is usually sufficient. When sows yawn frequently, it is evident they are bilious; liver out of condition. We have found nothing better than salts, one-fourth pound dissolved in warm water; add one tablespoonful Jamaica ginger, given in drinking water slightly salted. This cleans and cools her system. Let her get thirsty before giving, or she will not be likely to take it very readily. We believe salts given once or twice a week is very beneficial to suckling sows. The condition of sows has a great deal to do with the health of the pigs.

Scouring of pigs usually comes from the mother taking cold or feverish milk. When pigs scour we change to dry feed, bran and corn, giving plenty of charcoal and soot mixed with wheat bran, keeping the pigs in the house for two or three days. Sulphuric acid, well diluted, given with slops is a good appetizer. At two weeks old pigs will begin to eat a little. It is better to feed in a small place away from the dam—we think when it can be done it is better from the start to turn her out entirely away from the pigs. When feeding keep them from being tramped upon. Soaked corn with shorts mixed dry, so as to adhere to corn, makes a very excellent feed for young pigs.

Suckling sows do much better with soaked corn either in ear or shelled, than to feed dry, and we intend to feed pigs all they will eat and no more, feeding it very gradually at first; it is best to develop their little stomach gradually. When once well developed they will travel the road to maturity rapidly. We think it better and cheaper to let them nurse till weaned by dam, as the milk of the dam is the cheapest food. We prefer blue-grass for spring, and sows should not be turned on while suckling while dew is on or grass wet with rain.

After pigs are weaned and clover is six or seven inches high we would turn them on clover. However, we do not set as much store to grass and clover as some do—we mean for young pigs. It is the exercise they have, if the season is dry, that is beneficial. We would feed soaked corn, ship-stuffs, one-third wheat and three-fourths bran three times a day, all they would eat up clean. We think it best not to force young pigs too much that we intend for breeders, giving them slower growth. If they are for the butcher's block, the sooner we can get them there the better and the more profit.

I know this article is very improperly worded and badly written, but I claim it is original, and also my mode of care of pigs may be imperfect. I therefore ask my brother breeders to give a fair but rigid criticism.

DISCUSSION.

Chair. The subject is now open for discussion.

Mr. Barker. I would be glad to have the gentleman give his reason for refusing to let his sow run on grass wet with dew or rain when the pigs are young? That is a new idea. I never have been afraid to let them run on wet grass.

Mr. Smith. They are more liable to take the scours.

Mr. Barker. They do not affect mine that way.

Mr. Robinson. I will give my experience with young pigs. In regard to the loss of little pigs, I used to think if the sows were close enough together, so as to hear the little pigs squeal, they would trample the pigs and kill them. I had three sows to have pigs in one night, which were close together. I staid with those sows until two o'clock in the morning, for fear the sows would kill the little pigs, but not one was killed.

Question. What kind of pigs were those? [Laughter.]

Mr. Robinson. They were Poland-China—the right kind.

Question. I should like to ask Mr. Smith what he does with them when they get so fat that they die with the thumps?

Mr. Smith. I usually take them out of the pen and throw them away. If they have the thumps, give them exercise; run them pretty near to death, and sometimes they will get over it and sometimes they will die. It will break loose that tightness in the lungs by exercising them.

Mr. Riley. Give the sows plenty of grass. Do not feed very much corn, and do not keep them in a dry lot, and there is not much danger of thumps. If they have the scours, I would turn in a rye field. That will stop the scours.

Mr. Vance. I should like to ask what effect whey has on pigs?

Mr. Plumb. Experiments from whey have been secured with very satisfactory results. I can not say much on the question.

Mr. Vance. I can buy whey at 8½ cents a pound, but I want to know whether there is any profit in it or not.

Mr. Plumb. If I remember right, I believe 188 pounds of whey will produce one pound of growth.

Mr. Smith. I have never fed whey, but I have fed buttermilk with very good results.

The Chair. The question is in regard to Mr. Plumb's statement, on 100 pounds of whey to get 100 pounds of weight.

Mr. Plumb. I would like the time and attention of the association a minute. There will be Special expert meeting at Purdue, January 30th and 31st. Special effort is being made to make the meeting a decided success. There will be a number of pigs there that were exhibited at Chicago. Several breeders will be there, and there will be ample accommodation for visitors. I wish to request that this association and all swine breeders in the State will come to Lafayette and take an interest in this work. We will be glad to see you, one and all, and will do everything in our power to make it pleasant for you. I want to assure you Purdue will receive you with open arms and will make it pleasant for you.

Mr. Riley. I would like to state this: I have several times visited Purdue, and have never been there but it has paid me. Purdue is doing a great work for us. Try to attend this meeting. They are in touch with the breeders of Indiana. It is a successful school for young breeders.

Mr. Maze. I have been looking forward to this meeting as the most successful and interesting meeting that the Expert Judge Association has ever held. This seems to be a very important meeting, being held where it will be, at Purdue University. I believe that young breeders can not afford to miss this meeting. It is one of the best schools the young breeder can attend. He can learn more there than in six years' practical breeding.

WHAT VARIETIES OF FEED ARE BEST FOR BREEDERS DURING THE WINTER.

DISCUSSION.

Mr. Mints. I am not prepared to give anything of interest at this time.

The Chair. That is a good subject and should be discussed.

Mr. Smith. I think he had better tell us something on the subject.

Mr. Collins. I had hoped to hear something on that subject, as I would like to know how to feed during the winter.

Mr. Earhart. Feed corn, bran, wheat middlings, about two-thirds shorts and one-third bran mixed. This keeps the hogs' bowels in very good condition.

Mr. Harvey. I have tried feeding hogs onee a day on shorts. I put it in a trough for them dry. I have tried corn by itself. I think it is a good idea to change the feed, probably every week. I think it is a good idea feeding this way before any cold weather comes. Give them shorts and then go back to corn. When I feed shorts I feed about 9 o'clock in the morning. In the evening I do not feed anything.

Did you ever feed any soaked wheat?

I never had any good results with it.

Mr. Taylor. I have had some success in feeding hogs beet roots. I feed beet roots to my hogs two or three times a week.

Mr. Barker. I have had some success in that line also. I have feed the roots of the sugar beet. I have also fed our common turnip, but there is not so much nourishment in the turnip. I have fed pumpkins. I think a great deal of the pumpkins. I sometimes feed small apples. They get tired on the same thing and like a change. There should be something to take the place of clover and grass.

Mr. Beeler. I fed turnips during one winter, and had some good results; also in feeding small potatoes. Sometimes I have fed cabbage to hogs. I always feed my hogs well in cold weather.

Mr. Barnett. I use carrots. I think it goes a great ways toward furnishing food for winter. I have also tried oil meal. I am satisfied that is one of the good substitutes they can get for green food. Has any one else had any experience in that line?

Mr. Wiggins. I have had some experience in feeding oil meal, and I think it is very good.

Mr. Barker. I have also had some experience in feeding oil meal, and have had good results from it. The more we use oil the better we will appreciate it.

Mr. Cotton. I have given potatoes boiled. I usually boil them in the afternoon, put corn meal in while hot, and feed next morning. Potatoes in that way are very nourishing. I would not want to feed them without cooking.

Mr. Smith. I have tried wheat and found it satisfactory. I would like to ask Mr. Riley if he has had any experience in feeding wheat.

Mr. Riley. I have fed wheat and have had good results. I think the wheat a very good food for hogs. It keeps them in a healthy condition.

Mr. Cotton. If I have a clover field I will turn them into that field.

Mr. Riley. I think that if hogs have access to the clover field they will do on orn alone in addition to the clover. Pigs relish clover. I think best to winter on a clover field.

Mr. Cotton. I am in favor of fattening on clover.

IS IT PROFITABLE TO RAISE TWO LITTERS FROM A SOW IN ONE YEAR?

COTT BARNETT, LOGANSPORT.

What I shall tell you on this subject will be from experience. My subject is so closely related to one following, "Have Fall Litters Been Profitable?" that I shall leave most of my subject for him to discuss. For several years I have been raising two litters of pigs a year, and at a profit. But the spring litters, as a whole, invariably exceed those of the fall when profit is considered. Although I have had some of the best breeders I ever owned farrowed in the last half of the year, the fall litters have always cost me much more to rear than the spring. And the profit was, of course, very small. There are breeders of stock hogs who prefer the fall pig, claiming that they can prepare them for the next summer's pasture at about the same expense as spring pigs, and then have them large and old enough to go through the summer at scarcely any expense, and be ready for the early fall corn crop, and thus get into market in better shape and earlier than the spring pig, and at better prices. Now, I could never realize near as large a profit on spring pigs. But the years that my sows have one litter of pigs, I have always experienced more or less difficulty in getting them with pigs for the next spring, and those litters were always smaller in number, and the average quality was not as good as when the sows farrowed two litters in one year. From this experience I have learned that if you want large, healthy litters it is necessary to have the sow farrow two litters in a year. I prefer to have the sow farrow in early spring and fall. This enables the spring pig to be ready for summer pasture and the early corn, and the fall pig to be weaned before severe winter weather sets in. At these times of the year pigs have been the most profitable to me. At other times of the year two litters have not been profitable. From this short summary of experience I leave you to draw your own conclusions.

DISCUSSION.

Mr. Riley. I wish to commend the paper. I think it is an exceedingly good one.

Mr. Vance. My experience has been that if a sow has one litter in a year it will be a big one; if she has two litters they will be smaller.

Mr. Barnett. I get a larger number and better grade than breeding once.

Mr. Cotton. I am not a fine breeder at all, but I want a good litter of fall pigs. I put my pigs on clover, and the longer they are on clover the better they are. I realize more money on my fall pigs. I think pigs need a good bed. We have no stock that needs a good bed so much as the hog.

Mr. Craig. A friend of mine once asked me what I thought of bedding hogs. I told him that when I had a good bed to sleep in I was in better fix in the morning than if I had a bad one. So it is with hogs; they need a good bed. I think the most profitable way is to raise one litter from a sow and then fatten and raise another, and then sell them.

Mr. Earhart. The paper read was a very good one. I have been raising two litters a year with good results.

HAVE FALL LITTERS BEEN PROFITABLE?

DISCUSSION.

Chair. Two Boyds in the house and neither have a paper.

Mr. Cotton. I move that we have a speech from both of them.

H. O. Boyd. My experience has been with the best results in raising spring pigs. I shall not raise any more fall pigs.

Question. I would like to ask the gentleman if he disposes of spring pigs in the fall?

Mr. Boyd. Since I have been raising hogs I have disposed of them before the first of November.

Mr. Collins. As to the price of hogs in November and August, November is the worst month in the year to market hogs, so far as the price is concerned. The lowest average price in December was $4 48; the lowest average price in January was $4.21; the lowest average price in November was $4.39; the lowest average price in August was $5.10; in March it was $5.05; in July, $5.02; average for the year, $5.03. I think it would be a good time to market hogs in June.

Mr. Earhart. Can we get through with the business this afternoon so as not to have a night session?

The Chair. There are two subjects on the programme which we can have read this evening. Can we have a motion to hold a night session?

It was resolved to have a night session.

Mr. Barker. I have often wondered why four sows should be shown in a herd at fairs. I have noticed lately that they are showing three sows and a male, as it is much more convenient. This cuts off the necessity for new pens, will show the herd fully as well, and will be just as satisfactory to every one. I therefore move that it is the sense of this meeting that we request the Board to change from four sows to three in a herd.

Motion seconded.

Mr. Mugg. That motion is a very good one, but at the same time parties showing might like to show at other fairs besides this one, and unless other fairs will adopt the same ruling it will be some bother to the exhibitor. When we show here at our own fair, and then wish to go to Iowa or St. Louis, and they call for four, we will have to go home and get one or not show. I believe I will object to it unless we ask each association to make the same rule.

Member. We can ask our own Board to correspond with the other boards and agree with them upon a number. Of course, we don't want to differ from others, and if our Board will correspond with the others and say that it is the sentiment of our association that three are enough, and if they will agree to it we will adopt it.

Mr. Maze. I think Mr. Barker's motion is a proper one, but I don't think it goes far enough. I think this meeting ought to appoint a committee to make such changes, and if they think necessary to revise it to report this evening.

I move to amend Mr. Barker's motion to have a committee of three appointed to make such revision.

This can only be a recommendation from this body.

Mr. Riley. I think this thing has got to have a starting point. The World's Fair has led in this matter. I think all breeders would prefer to have three sows instead of four in a herd, and it is better for superintendents of fairs everywhere, and I feel sure that if there was a committee appointed to confer with them, this could be arranged to the satisfaction of all, and follow the same course that was followed at the World's Fair.

Mr. Mugg. This might be got at in a shorter way. I believe the right way would be to have a committee appointed to revise that premium list.

The Chair. This motion will have to be disposed of. State the motion as it is.

Moved that a committee of three be appointed to make such revision as may be necessary, and report this evening.

Motion seconded and carried.

Committee—Mr. Maze, Mr. Mugg, Mr. Barker.

On motion of Mr. Mugg, a committee of three was appointed to report on the death of two members of the association who have died since the last meeting.

Committee—Mr. Crose, Mr. Riley, Mr. Seagraves.

On motion, a committee was appointed to get up a programme for next year.

Committee—I. J. Smith, Ed. Morris, Mr. Mints.

Mr. Maze. The State Board presents a bill for one-eighth of the amount that was paid the Central Traffic Association representative who came here to sign your certificates. The amount is $2.25.

Mr. Miller. To whom does this money go?

Mr. Maze. It goes to the agent who was here yesterday and to-day, and if we do not pay this year we will not have the benefit of this rate next year. This is for your own benefit.

On motion, it was resolved that the $2.25 be allowed.

The Secretary read report of incidental expenses, as follows:

Expressage on books	$0 25
Expressage on programmes	25
Stamps	60
Envelopes	50
Postage	1 00
Total	$2 60

On motion, it was resolved to allow these expenses.

Motion made to elect officers for the coming year. Seconded. Carried.

The name of Mr. Thomas H. Mints, of Mohawk, was placed in nomination for President, and on motion of Mr. Mugg he was elected by acclamation.

Mr. James Riley for Vice-President elected by acclamation.

Mr. B. W. Harvey for Treasurer elected by acclamation.

Mr. Cott Barnett for Secretary elected by acclamation.

Mr. I. J. Smith, Windsor; Mr. R. H. Berry, Rushville; Mr. R. L. Bratten, New Ross, for Executive Committee, elected by acclamation.

Adjourned to meet at 7 o'clock P. M.

THIRD SESSION.

Meeting called to order at 7:30 by President Cunningham.

HOW I GOT THE PIGS TO PERFECTION THAT WERE WINNERS.

DISCUSSION.

Mr. Lanhan. I have not given this subject much attention, as I did not expect to be here this evening. I will have to be excused from saying much.

Chair. We would like to have you start the subject.

Mr. Riley. I have never yet succeeded in getting my pigs to perfection. I have done my best, but have not succeeded. I have had a great deal of experience in feeding pigs for the fairs, and have had some success, but yet I think there are greater things in store for us in the future. I think we learn a good deal at this association, and we will learn something more at Purdue. I think we ought to have a pretty high standard in our minds and try to breed pigs up to it.

Mr. Smith. Judge Shepard is here and we would like to hear from him on that subject.

Mr. Shepard. I think the President is better able to talk on this subject than I am. Have a pretty good pig to start with, and then feed him plenty of sweet milk; that is the main item. The cow as a step-mother I regard as a very valuable adjunct in preparing pigs for shows. However a starting point beyond that is to get a good cross. As friend Riley says, you must have an ideal to work to. You can not very well make an intelligent cross unless you have an ideal pig that you want to breed to. Swine breeders of various breeds have brought to a very fair degree of perfection of what the best hogs ought to be of each particular breed. That has furnished a common ideal to which we all can work. It may not suit the everybody, but it will suit the majority of persons probably better than any idea they may be able to construct themselves. Taking that ideal, then, for each breed and impressing it upon the minds of breeders is, I think, the first step. Then the breeder knows in what direction he is driving. After he has got that idea pretty well in mind, he can then make selections of breeding stock as nearly approaching that ideal as possible. In my opinion there should be as little difference in the size of the animals coupled as possible. That is to say, I don't think, as a rule, that a large hog and a small hog couple with any great degree of certainty, or, in other words, the small type with the largest type.

Again, I think the boar should be larger than the sow. I know I am a little cranky on that subject, as against the general consensus of opinion of probably the majority of breeders, as most of them prefer that the sow should be larger in proportion to the breed and family. I think the reverse. As I have said in this meeting a great many times, you find, in all animal creation, that nature creates the male larger than the female, and I think if you follow nature in that direction you will be more likely to get good results than if you try to get up a combination against nature. At least such has been my experience. Now, in crossing a large male upon a small sow, or a small boar upon a large sow, my opinion is that the litter is more or less unequal. Where the plan I suggested of having the boar slightly larger than the sow is followed the litters are more uniform, and you want uniformity, in the start, in the size of the litters, as well as in the make up and appearance, in order to get show pigs. You can raise plenty of pork probably by having a variegated litter, but if you want show pigs, you want uniformity in size and style. Having secured fair results in that direction, the next step is to take the best care of those pigs from that time on until you show them. I have had some experience in caring for young pigs somewhat different from the general practice. I used to feed a good deal of slops in my early experience with sows during the suckling period, but I have nearly abandoned it. I feed almost entirely corn and milk. The experience I have had with slops has induced me to believe that it has a tendency to produce scours. After the pig is ready to wean, there is not much danger from disorders of the stomach. Until that time he is not very well prepared to masticate his food. Therefore, if you can supply milk it will do with a small amount of meal scalded. I like it scalded better than I do cooked for them, and when they begin to eat I have had better success by taking the meal and pouring boiling water over it and letting it stand until it gets cold, and then mixing it with milk. A certain amount of green stuff is also beneficial, but my main dependence is upon the scalded meal and plenty of sweet milk. I have tried oil meal and did not like that. I have tried ground oats, but did not like that as well as the scalded meal and milk. The hull of oats is indigestible and causes an irritation of the stomach and bowels, and produces scours and throws him back. Probably others may have had a different experience. You can modify this by grinding corn with it, but I do not like oats at all, and would rather have wheat and corn ground together.

Now, the next thing is to know how to feed. I think it is better to feed three or four times a day, and never more than they can eat. Keep the trough nice and clean, because the old food that remains in the trough gets sour and moldy, and imparts a diseased condition to the new food that you put in. It is not only more palatable, but it is healthy to have the food clean. Feed regularly at stated times, and don't feed any more than the pigs will eat up clean. If you have a cow to each litter it is good, but if you have two cows to each litter it is better; in other words, you can not get too much nice, new milk if you want to have the pigs curl their tails and get in good condition for the Fair. The milk is cheaper than any other food you can give the pigs, and it makes more money put into pork, than it does put into butter, or milk sold to the dairy.

Mr. Riley. My experience corroborates what Mr. Shepard has said. When feeding pigs for the fairs I first pour out a small portion of food, and if they eat it with a keen appetite I pour out more, and then no more than they can eat. I have certain times to feed, and feed as regularly as possible—usually three times a day. I will say, as Mr. Shepard says, that I have never found anything to equal new sweet milk for pigs. Then I use ground wheat, but not ground oats. I never had good success in feeding ground oats, but good success in feeding wheat and shorts.

Chair. We would like to hear from Mr. Smith.

Mr. Smith. I will have to be excused, for I have had no experience in feeding for shows, and would not know a hog that was fed for the show ring from one that was not.

Mr. Barker. I like most of what Mr. Shepard said. He said new sweet milk was his favorite food for the pigs. I suppose he means milk that was not skimmed. If I want a pig with good bone and muscle, I believe I prefer skimmed milk. I believe in grinding the wheat and feeding that, and not very much corn. I am sure I get better bone and muscle, greater growth, and that they stand up better on their feet by feeding skimmed milk. I like oil meal, too. In the main, though, I agree with Mr. Shepard. I would leave out some of the corn that he wants and use skimmed milk.

Mr. Shepard. I would like to ask Mr. Barker if he ever saw a young pig that was getting sow's milk break down from feeding. Sow's milk is richer than cow's.

Mr Barker. That is too young. It is from three months and up that they break down, and I believe in leaving out corn and feeding skimmed milk. There was a time when I used to get extra cows and carry the milk straight to the pig pen, but now I use skimmed milk every time. You will get a larger frame and more strength.

Mr. Mugg. I will ask Mr. Shepard if he has ever had any experience in feeding cotton-seed meal?

Mr. Shepard. No.

W. R. Harvey. The question is not whether you are feeding them enough, but whether you are feeding them the right kind of rations. Feed them all they will eat, and keep the trough clean.

Mr. Shepard. I have never had any trouble in over-feeding. Now, I will ask my friend here if he can put up a ration that will beat old Nature. Nature puts up a ration that is intended for young animals, and the cream there is mixed with the milk. You can not get a better balanced ration than Nature furnishes. The only trouble is that when the pig gets beyond the period where milk alone will sustain him, you have got to give him something else, but must not drop the milk. That goes right along.

Mr. Gilmore. I think Mr. Shepard covered about all the ground, but I differ from him in one thing. I think oats the best feed for young pigs. I think there is nothing better to build up the pig to stand up well. I never used anything that was equal to it.

Mr. Craig. I once had a sow that had a litter of ten pigs. When the pigs came I took corn and oats and ground it together, then bought a cow. I think she would average seven gallons of milk a day, and we mixed the oats and corn together and fed them twice a day. I tended those pigs myself, and when we showed them at the State Fair, I think the pigs would average 75 pounds apiece. Some people tried to say they were pigs from different sows, and some said they were not sucking pigs, but the committee came to see them and they were sucking at the time, and they said that settled it. They were well developed and well set up in every way. I have never had a pig in all my feeding that broke down. Now, there is one thing about feeding for show and for breeding. The first year I fed pigs I fed slops all the time. The next year I said I would not feed so much slops, but would feed more grain. From then on I fed them that way, except when feeding for the show. There is nothing better for fattening than corn. I find in feeding all young stock that mixing slop stuff with shorts develops more bone and muscle.

Mr. Cunningham. It has been very interesting to me to hear this discussion an the different ways of feeding pigs. It has been the study of my life, and the only drawback I can see is in the feeding of milk. I am not like Brother Shepard, they don't get the cream around my house; they get skimmed milk. I want the cream for myself.

I will say this, that I have never fattened a pig on milk. I have never seen the time when I could get enough milk to do that. I have noticed pigs that have been fattened on milk for show purposes. I don't believe it is an injury to them only in one sense of the word. You take them home from the fair and you turn them out and the milk diet is not kept up, and the pig relapses. This causes a wrinkled hide on the pig. I saw some pigs at the World's Fair, and the owner told me that they had never run without milk, and they were smooth when they came there, but when I saw them they were as wrinkled as a merino sheep. I blamed this to the milk diet. When the ration of milk is shut off they relapse. I don't want you to understand that I say that milk is bad for them, for I believe it is good for a pig or anything that likes it. The old adage says "great men will differ," and it is so in the hog business. I think equal parts of wheat, corn and oats ground together makes a good feed. The only secret in this feed is the miller you have to deal with. Not one miller in twenty will ever grind it right for you. He will not make flour out of it, and that is about the only way it is any account. I believe there is no better feed than these three articles combined. Bran and shorts and wheat are good, and oats is a good muscle producer.

Mr. Shepard. I understand you to say that at your house you got the cream.

Mr. Cunningham. Some of it.

Mr. Shepard. I would like to inquire whether any wrinkles got on you when you went to the Fair?

Mr. Cunningham. I will just say to you, ask Brother Riley or Brother Barker what occurred at the World's Fair this year. I had the cream there, but the pigs couldn't get it.

Mr. Strange. Some practical hog feeders near my place grind their feed coarse and feed dry, claiming that they get better results in that way. I can not say that I am altogether in favor of grinding fine. I grind my own feed, and I have been impressed with the idea that I get the best results out of what you might term medium grinding. As a rule I aim to get the most possible out of the labor I perform and the grain I feed. I have found of late years that to get profit out of growing grain and feeding stock that I had to make the expense in caring for them as little as possible. To make slops every time a man feeds hogs takes some time. I have heard the subject of clover for hogs discussed to-day, but nothing was said about the character of the pork. For my own consumption I desire to give the hog a ration of grass, if possible, and make a muscular growth. I take my hogs a little longer in the finishing course. I think I am producing better results and a better quality of pork for the market by a course of long feeding, and I feed now a ration of grain but twice a day to a finishing hog, and I grass him all I can. Now after slaughtering my own provisions this season, when I run the knife around the ham I have nearly all pure steak. Two years ago I packed my entire lot of hogs. They were too fat, and were objectionable to the consumers. Now, I have been watching that thing, and I took a hog that was just about a year old and put him through the course I speak of, and I found nice steak in cutting the ham. I think in preparing pork for the table, one of the most desirable objects is to please the eye and taste of the consumers for that is the final end of the hog. This quality of meat will, in my opinion, command a difference of price in the near future.

Report of committee on revision of premium list read by Mr. Maze.

MR. PRESIDENT—Your committee to whom was referred the matter of revising the premium list, and rule in the swine department, would respectfully report:

1. That the rule governing herds be made to read as follows, viz.: Aged herds shall consist of one boar and three sows, over one year old, to be owned by exhibitor.

2. Young herds shall consist of one boar and three sows under one year old, to be owned and bred by exhibitor.

3. We further recommend that the premium on aged boar in class be raised to $15.00 on first and $8.00 on second, as it was in 1892.

4. That all animals shown for premiums in the several classes shall be recorded in their respective Registers, or eligible therefor.

Respectively submitted and signed by the committee, W. A. Maze, I. N. Barker, L. Mugg.

The Chair. I would suggest that if they are only going to give the two herd prizes they ought to raise them.

Mr. Maze. In 1892 those two herd prizes were only an experiment; one of the herds to be owned and the other to be bred by the exhibitor. We found that when the show came off in about four-fifths of the cases the same herds were shown for the two premiums, and also for the young herds, consequently it was just duplicating first premiums, and it was thought by the Board that it was not right for the reason that the same herd got two sweepstake premiums, and the Board felt that it had hard enough work to pay the premiums, and it is unusual to offer premiums of that kind.

The Chair. In this case the young and old herd are both the same prize, are they not? This seems rather a small prize. It may not be an inducement to breeders to bring their herds here.

Mr. Shepard. I think that inasmuch as the society is in a hole they ought not to pull them too hard this year, and I make this suggestion: that in order to increase the herd shows, the society give the herd prize, and everybody that wants to go into competition be assessed a dollar or two, or fifty cents on each animal shown, which would be two dollars on four animals, and that to go into a fund to be added to the herd prizes. I think it would have the tendency among exhibitors to bring better herds if they want to show for herd premiums; if they did not want to show for herd premiums, let them show for general premiums. Herd prizes could be built up that way without a great deal of expense to the exhibitor, and he would have a chance to get back his money and some of the other fellows' money. This year how would it do to try that kind of a programme? I think the State Board ought not to be pulled too hard this year. They are in the slough, you might say, so far as finances are concerned, from last year. I don't think they are responsible for this, but everything seemed to conspire this year against the Fair and the exhibitors. Let the society put up the usual prize and then let them collect from the exhibitors of herds, and let that go to swell the prize offered those classes.

On motion, report of committee was adopted.

Mr. Shepard. I move that this association request the State Board to put upon all entries for herd premiums a fee of ten per cent. of the amount offered by the Board, and the same for sweepstake prize, boar and sows, and that the money be collected by the Secretary and held by him, and added to the premium offered by the society for each of those classes, the money to be divided *pro rata* between the first and second prizes. I think we should take out of the list of premiums the sow with a litter of five sucking pigs, and substitute for it four pigs the produce of one sow.

Mr. Maze. In 1892 the sow and litter was left off, and the year following a kick was made by some of the breeders, and now there is a kick to leave them out.

Chair. I think the ruling of this meeting should govern the premium list in the hog department. That is what this meeting is here for, to govern these things, and while the body is together to take a vote on it and find out what they want.

Mr. Shepard. I move to substitute, in place of one sow and litter of pigs, four pigs under six months old, the produce of one sow.

Mr. Cunningham. Pattern after the World's Fair and they will come here next year and think it is the World's Fair. I believe the list should be revised to read, instead of five pigs under one year, the get of one boar, five pigs, the get of one boar, of any age. I think it ought to be changed to read any age. St. Louis allows any age and so does Peoria, Illinois.

Mr. Shepard. I think that ought to be left under twelve months, and then watch the teeth of the pigs as well. Better put it four breeding animals under one year, from one sow.

Chair. I think that if you just leave that about age out it would be better, for you will all admit that the best class are the yearlings, and you shut those out.

Mr. Shepard. I would be in favor of confining it to one litter. It is the best mark of the potency of either the sow or the boar. If I was to change this matter at all I should say these pigs should be the get of one boar in one litter. Then you are showing up the capacity of the breeder better than you are by letting him select out of a big herd. That gives the young breeder a better chance, and gives them a better fight on that class of premiums than it does a man who has a large herd. In addition to testing the capacity of the potency of the animal itself you also give a better chance to young breeders or small breeders.

Mr. Maze. I think Mr. Shepard struck the key-note when he made the suggestion that the get of the boar should be from the same sow. You may think, from my talk here to-night, that I want to dictate, but it does not make any difference to me what shape you get these premiums in so that you do not get too much money in the premiums. But I do think that if you do make a change it ought to be made that the get of the boar should be from the same sow.

Chair. I will say in regard to the get of the boar from the same sow that there is no class in any State Fair of that kind, and a man that is going from fair to fair and carrying his stock would come here and that is all the show he would get, for he would have to get another lot for the other fairs. I don't believe in getting so far away from the rules of other fairs.

Mr. Shepard. I move that the Premium List be changed so as to read, "Four pigs under one year old, the get of one boar."

Mr. Mugg. I would favor putting that under six months old because we have a pig under six months, and we have the produce of one sow under six months.

Mr. Cunningham. If a man has a good enough litter to win under the first class he has a good enough litter to win under the other two.

Mr. Shepard. If there is a man in Indiana that can raise a litter of pigs that can take all of those prizes he ought to have it. I, myself, would rather see that placed at six pigs in a litter. What we want is to get as many good pigs in a litter, up to eight, as it is possible, and we will never get it in any way than by offering premiums for the best number of pigs in the same litter.

The Chair. Is there any ruling in the premium list against showing the same litter for other prizes?

Mr. Maze. A committee has been appointed by the Board to revise the ruling, and I can not say what the rule may be, but at the present time there is no ruling to prevent the pigs showing in both classes.

Premium list read by Mr. Maze.

Mr. Shepard. I think that instead of reading pigs under six months it should read over three and under six. I think the premium ought to be $8 instead of $5.

Mr. Maze. I think the list a good one. When you put up the premiums for the entire list you have an enormous amount of money. It would be almost impossible to give an advance this year.

The Chair. Are many Yorkshires brought to the show?

Mr. Maze. Yes; a good many.

Mr. Riley. Are there many Suffolks?

Mr. Maze. Yes; a good many.

Mr. Shepard. The Yorkshires and Suffolks ought to be classed here as they are in England, as Small Whites.. The Yorkshires they have been showing here the last year or two are as big as Chester Whites. There is no sense in making a Yorkshire and a Suffolk class, for they are practically the same thing. There are not many of these pigs raised except to take around to show at fairs. The object of the State Fair is to excourage that class of stock that is profitable for this State. It seems to me there has been experimenting enough, and if there is any curtailment to be made in prizes, let us shave down those classes that are not practical and apply the money to the breeds that are of some general use to the community at large. If there was a new breed starting up that would be a different proposition, but Suffolks have been raised in this country ever since I was a boy, and there are less of them than there was fifteen years ago. There are a few herds in the East and a few in Ohio, but the ordinary farmer does not raise them at all.

There is a point there worthy of consideration. I hear lately of an unscrupulous dealer that went round from fair to fair with a herd of Yorkshires, and the larger ones were entered as Yorkshires and the small ones as Suffolks. It is hard for most people to tell the difference between them. The judges at the fairs gave that man money for two breeds, when in reality there was only one breed.

Mr. Maze. There is $242 in each class, making $1,542 for all.

Mr. Shepard. Let us knock off some of the classes. The Yorkshires and Suffolks and Essex might all go together, because they are practically the same breed, and they should be called the small English breeds.

On motion of Mr. Riley it was resolved that the Yorkshires, Suffolks and Essex be all put in one class.

On motion of Mr. Shepard it was resolved that there be a class of Large Whites, and let that include Chester Whites, Cheshires and Victorias.

On motion of Mr. Shepard it was resolved that the Duroc Jerseys and Tamworths be classed together as Reds.

Mr. Maze. Before we go any further I want to know who is going to stand the cursing.

Chair. The association.

Mr. Shepard. I move that what we have saved by consolidation be divided into four parts and one part be added to the Poland-China, one part to the Berkshires, one part to the Large Whites, and one to the Reds, pro rata on each premium class and sweepstakes.

Mr. Maze. I would much rather this association took pity on the State Board of Agriculture and donated that amount to the Fair.

Mr. Mugg. I look at it this way. I think the State Board should never have offered as low a premium on hogs as $3. There is nothing that brings more money into the United States than hogs. Let them cut down the premiums on horses and cattle, then they will be on an equality. Think of offering three or four dollars on a pig worth $75! We thought by cutting these premiums down the State Board couldn't kick, and they would not be bothered with so many hogs. The hogs deserve better premiums than any of the other animals. I don't believe in cutting them down for any cause.

Mr. Maze. Well, I hope you gentlemen will not get serious over this matter.

Mr. Shepard. The first serious member was a member from the State Board.

Mr. Cunningham. I will say in behalf of Mr. Maze's request for this donation, if, after the hog men of this association have come here and done this, if the cattle men would do the same thing, maybe there would be something in it, but to call on us to do it and let the other fellows alone I don't think would be right. We have not taken from the State Board, but from men who we think have no practical interest in the country.

Mr. Maze. I have no objection at all to this association recommending an increase in the premiums for the classes that remain, but I don't think that the entire amount ought to be put into these classes. It would swell the individual premiums enormously. Perhaps it would appear all right to the exhibitors, but as a member of the State Board I don't think you can censure me for being as economical as possible. Any recommendation that you make will be acted upon and carefully considered by the Board, but I hope you will not recommend any extravagant measures this year. We have done our part, and it has been a hard tussle. As I said before, I am willing for this association to make any recommendation they wish and it will be considered in a reasonable manner. I think myself that these little premiums should be advanced.

Mr. Shepard. I don't think any one is blaming Brother Maze, and if any one is, we will turn him out of this association. We simply recommend, and the Board will do as they please. My opinion is that if you will ask for a loaf you will be more apt to get a half loaf than if you ask for a half loaf in the first place. But I think it is fair and reasonable that when we have reduced the classes that the money ought to be given to the other classes that are recognized as best by the pork producers of this community.

Mr. Riley. I think it might be well for us to recommend that to the State Board and then the Board will consider it, and give it to us or let it alone, but if the Board were not embarrassed as they are now it would be a matter of right. It belongs to the association; it is simply transferred from the classes that are not worthy to the classes that are worthy. I think it would be well for us to pass these resolutions, and ask the Board to give us this money.

Mr. Maze. I believe now that it would be a more equitable plan in preparing a premium list to have kept these classes in the list and recommend premiums in proportion to the value of the different breeds. That would run some of these little fellows down to a very small amount of money, but it would give them a show. The way it is now they get more money than you do, and their hogs are not worth one-fourth of what yours are.

Mr. Shepard's motion read:

It is moved that what we have saved by consolidation be divided into four parts, and one part be added to the Poland-China, one part to the Berkshires, one part to the Large Whites and one to the Reds, pro rata on each premium class and sweepstakes.

Motion seconded and carried.

REPORT OF COMMITEE ON RESOLUTIONS ON DECEASED MEMBERS.

WHEREAS, It has been the will of the Divine Father to remove by death our esteemed brother swine breeders T. M. Reveal and J. H. Bebout; therefore,

Resolved, That we loose by their death two firm friends of progress and leaders in the field of successful swine breeding—men of sterling integrity and highly valued members of this association.

JAMES RILEY,
DAVID CROSE,
A. J. LEAGROVE,
Committee.

Resolutions adopted by rising vote.

Mr. Mugg. I think we ought to ask the State Board to still hold Mr. Maze for the next year for our Superintendent of the Swine Department.

On motion of Mr. Mugg it was resolved to ask the State Board to retain Mr. Maze as Superintendent of the Swine Department for the coming year.

Mr. Maze. I thank you, gentlemen, one and all, for this manifestation of your confidence in me as Superintendent. I have filled the position for three years, and how well I have succeeded is not for me to say. I will say, however, that I have used my best endeavors to promote the interests of the exhibitors of swine who have come to our fair, and if I am appointed this year I will still try to do my duty as best I am able, and whatever mistakes I may make, and whatever mistakes I have made, I hope you will feel are an error of judgment and not of intent.

On motion of Mr. Shepard it was resolved that the Secretary notify the State Board that all action taken by the Swine Breeders' Association looking to an increase of premiums, in the striking out of certain breeds that Mr. Maze, as a member of this association, urge the association not to increase the burdens of the Board.

Secretary Barnett. Some gentleman who exhibited at the State Fair and got a small premium which he never expected to receive owing to the financial condition of the association, came in here a few days ago and got his money and then decorated this room.

Moved that a vote of thanks be tendered to Mr. Wiegand for decorating the room with plants.

So ordered.

Moved and seconded that the newspaper men who attended the association be also tendered a vote of thanks.

So ordered.

Moved and seconded that a vote of thanks be tendered to the President for the able manner in which he presided over the meetings.

So ordered.

Moved and seconded that a vote of thanks be tendered to the Secretary and stenographer for their attention and diligence in performing their duties.

So ordered.

On motion of Mr. Shepard it was resolved to request the State Board of Agriculture to fix the time of meeting of the Swine Breeders' Association for Thursday of the week that the State Board holds its meeting next year.

Adjourned.

INDIANA WOOL GROWERS' ASSOCIATION.

Meeting called to order at 1:30 P. M. by the President, Hon. J. F. Tomlinson.

Reading of minutes of previous meeting by Secretary Robe.

Reading of minutes of call meeting held September 4, 1893.

Minutes of both meetings approved by the association.

Motion made and carried to employ a stenographer to report the proceedings of the association.

Secretary Robe. I believe last year we took no dues from the old members, simply the fee for new members, hence our finances are low and I think it will be necessary for the old members to pay as well as the new. I know from the Treasurer's showing that there is nothing in the treasury, and we are in debt about $10.

Mr. Phelps. The annual fee is $1.00, is it not? What constitutes eligibility to this association?

Mr. Robe. Any one who owns sheep may become a member.

Chair. We do not collect a fee usually, but this year we will be obliged to, and every member will be asked to pay his dollar.

W. W. White appointed to assist Secretary to collect dues from old members and to enroll new members.

TREASURER'S REPORT.

Amount of money on hand January 12, 1893		$22 05
Received of new members		3 00
Receipts for 1893		$25 05
Paid shorthand reporter, J. W. Custer	$10 00	
Paid to Mundelle Printing Co.	13 00	
Disbursements	4 56	
Amount		$27 56
Deficit		$2 51

Mr. Thompson. For the first time since I have been Treasurer we have a balance on the wrong side of the sheet. I don't think, however, that this is the Treasurer's fault.

Chair. Gentlemen, you have heard the Treasurer's report, what shall be done with it?

On motion approved.

Mr. Darnell called to the chair while President's address is being read.

PRESIDENT'S ADDRESS.

Gentlemen of the Indiana Wool Growers' Association:

Another year has passed and by the mercies of a kind Providence we are assembled again in the interests of sheep husbandry. "Shall we continue to raise sheep?" is the question in the minds of sheep farmers at the present time.

Perhaps the prices of sheep and lambs have declined in the principal markets thirty-three per cent. in the last two years and twenty-five per cent. in the last year. The price of wool has also declined, especially on fine wool grades.

Many sheep raisers have fallen into a panic; many have reduced their herds, and my opinion is that one-half the farmers in Indiana have sold their flocks.

Hence the question, "Will sheep raising pay?" Let us inquire briefly into the causes of this condition. Doubtless the uncertain policy of the Government in regard to the tariff on wool, and the reduction that it is thought the present administration will make, have been potent factors in producing the discouraging result. The people have become afraid that if the tariff on wool is reduced or removed it will not pay to raise sheep.

The woolen manufacturers are cautious, and will only buy wool to manufacture for orders in sight, and the result is a stagnation of the wool industry.

While it is not my purpose to enter into a discussion of the tariff, I want, in passing, to express the desire that the duty on wool shall not be made any lower than it now is.

I fear, however, that we stake too much on the profit on wool and not enough on the profit of lambs for the market.

Second, there can be no doubt that foreign competition is one of the causes that threaten to cripple the noble occupation of the herdsman. Our chief competitor is Australia.

The wools of that country are similar to our own, and are used, as are ours, for the better kinds of clothing. Australia manufactures but a small part of her product, and sends the greater part of it to other countries as raw material. The imports of this wool have greatly increased of late, and so long as our home product is insufficient for our manufacturers these imports will be required. In 1882 Australia produced 993,000 bales of wool. In 1892 that country produced 1,750,000 bales. While this has contributed to depress our wool market, I would remark that there are discouraging causes there as well as here. In the decade just referred to, the price of wool declined in Australia from $80 per bale to $60.50 per bale, and there was a prospect of a decline of from 10 to 12 per cent. in the clip of 1892. Moreover, the Australian shepherd has many obstacles to contend with. Extreme drouths injure the pastures, floods drown the lambs, rabbits destroy the pastures and parasitic diseases commit disastrous ravages.

Third, we are just emerging from a drouth almost unparalled in the recollection of any one here, and which was central in Indiana. This has had a marked effect upon farmers who, seeing the approach of winter and their stock poor, have sold their sheep on account of the scarcity of feed.

Fourth, the country has been suffering from the effects of the closest financial stringency and the greatest financial distrust experienced for twenty years.

My idea is that the causes mentioned have led to an unloading of sheep. It was recently stated that the receipts of sheep at Chicago in eleven months had been 2,804,747 head, and it was supposed that in the year 1893 the 3,000,000 mark would be passed by 50,000 head. In 1893 about 1,000,000 more sheep were handled at Chicago than in 1892.

The causes referred to have furnished the markets with an oversupply, which has glutted the markets, and the scarcity of pasture has contributed to make bad markets.

It appears to the writer that the sheep panic is a false alarm; that some one has cried "wolf! wolf!" when there is no wolf, and the shepherds have become frightened. The four causes mentioned give some room for discouragement, but has not the greatest discouragement arisen from the fact that these causes have conspired to throw the shepherds into a panic and they, not the causes of alarm, have broken down the market.

I beg leave to submit the following suggestions for the encouragement of sheep raising:

1. This business will rally and the farmers who have sold their herds will want to buy, and I believe that those who hold on to their sheep will supply them at advanced prices.
2. Every farmer can afford to keep a small herd of sheep, even if prices are low, to supply his own table with mutton.
3. The increased use of mutton in the United States. The wholesale butchers in and near Manhattan market say that for the six years preceding 1893 the consumption of mutton has doubled each year. Butchers in the leading markets of New York say that hotels, restaurants, and private families take about equal quantities of mutton, and that the meat is in better demand than beef, fish or game. A few butchers make a specialty of supplying steamships with meat, and they say that in nine cases out of ten mutton is taken in preference to beef. There must be a field for the American farmer in supplying the mutton market. And this thought is emphasized by the further statement of these butchers that this country produces very little good mutton. They say that they depend on Canada, South America, Ireland and Scotland for their best mutton. Why shall not America, with all her wealth of feeds, not produce this high-priced meat.
4. Take the average year and what other live stock pays better than sheep? If we do not raise sheep what shall we raise? It is claimed that cattle raising is overdone, and only special varieties of horses bring good prices. The hog market fluctuates. They have been high for a time, but preceding that time they were a drug at from 3 to 4 cents.
5. Sheep furnish two profits, the wool and the lambs.
6. They require very little grain.

7. They are excellent fertilizers. They carry the fertility of the valleys and deposit it on the thin uplands, for sheep generally sleep on the hills, and the fertilizing effect of sheep upon a field where they have been allowed to pasture is remarkable.

8. Any farmer could afford to keep a small herd of sheep for the sole benefit of killing off the weeds. They are the greatest known enemy to weeds.

9. They are proof against the rigors of our climate, as nature hath given to them their all wool robes, and their normal temperature is 104°.

10. Their digestion is far more perfect than that of any other domestic animals.

When Jay Gould was before a Legislative committee that was investigating the methods of an election in New York in which Mr. Gould sought to make a large haul for the Erie railroad, he was asked if when out electioneering he had been a Democrat or a Republican? He replied that in some counties he was a Democrat and in some he was a Republican, but he was always for ERIE.

Gentlemen, in high tariff or low tariff, in drouth or in showers, in foreign competition or home supply, in prosperity or adversity, I am always for SHEEP.

I shall be glad if I have made any suggestions that will be of value to any farmer or that shall encourage any one to continue in or engage in the sheep business. It is a noble and refining occupation. Glad tidings of great joy came to the shepherds who watched their flocks on the hills of Judea by night, and I believe that moral elevation and financial profit will visit every faithful shepherd of our day.

On motion the President's address was referred to a committee of three for consideration.

Mr. Beeler. The President's address is an admirable one. I think his views are very good. I believe with him in sticking to sheep through storm and sunshine, through rain, hail and snow.

Messrs. Levering, Thompson and Phelps appointed as committee to consider President's address.

IMPROVEMENT OF FLOCKS BY SELECTION.

BY C. A. PHELPS.

We would infer from the title given that the flocks we now have are to be improved by selecting the best rams for breeders that our purses will procure; and each year, when culling time comes, we should be able to tell which animals to select and which to reject.

To most breeders who are just founding a flock, the temptation seems very great, and reasons pretty well founded, for *selling all* the ewes and buying no more *protection rams* at long prices. However, we as wool growers hope for a bright sunrise after the storm sweeps by.

In selecting a ram to head my flock I want one of fair size, good style, and active; a medium sized bone, which denotes early maturity; head should be carried well up, and present large nostrils; breast wide and well filled, straight, broad back, with ribs well sprung; deep body and not tucked up in the flanks; he should be broad between both fore and hind legs; the skin should be soft and mellow and of a pink color, denoting good health. If he has a good pedigree, so much the better; the fleece would be a secondary matter under the present administration.

Should I have a flock of native sheep I would select rams that would come as near the above standard as I could procure and my purse admit of buying. Far too many make the mistake of buying common rams because they are cheap in price, and almost invariably they are cheap in quality.

After obtaining this choice ram he should be given some care, not be put with the flock, and only be seen probably once a week at salting time, but he should be kept by himself and receive liberal care and proper feed. During the coupling season the ewes should be put to him when required, then placed in another lot, recording the time of service, etc., in a flock book, and I will say here that this book is very essential to flock masters, and should be used quite freely by making memorandum of the breeding qualities, etc., of each member of the flock, thereby we are better able to tell which animals to reserve and which to reject.

If it is inconvenient to use the ram, as described, I consider the next best plan to keep him away from the flock during the day, and allow him to range with them at night, by thus doing he can receive better care and feed than if allowed with the flock all the time, and the shepherd receive compound interest on his time so expended, in caring for him, by receiving *larger*, *stronger* and better lambs, which gives us better timber from which to select our ewes for future use.

It is very seldom policy for us to use rams of our own breeding. A noted breeder once being asked what proportion of rams, bred by himself, he would be willing to use in his own flock, he quickly answered "not one in 300."

When the noted Greyhound breeder, Lord Rivers, was asked how he succeeded in breeding such fine dogs, his reply was: "I breed many, and hang many." The same holds good with our flocks, we should breed many, and not hang, but sell many of the culls.

Allow me to state that feed and care have as much to do with improvement of the flock, as selection. The best bred animals, without proper attention, soon deteriorate, so they look but little better than the scrub.

We surely have as good blood here as they have across the pond, but their kind of feed and care bring about that well rounded form and faultless fleece, which is seldom obtained here.

Close attention given to the lambs at weaning time, is time most profitably spent, for this is the most critical period of a sheep's life. They should have been learned to eat before deprived of their dams, and ever afterward should receive that care and feed that produces the animal which catches the eye of other breeders when making selections for their flocks.

The Chair. Gentlemen, you have heard the reading of this fine paper; now we are ready for the discussion.

DISCUSSION.

Mr. Robe. I think the paper is an excellent one, and I agree with its general sentiment.

Mr. Dungan. It is a good paper, and I enjoyed it. There is one point that Brother Phelps touches on that is very important. While we would not discourage fine breeding, fine pedigrees, or excellent individual merit, yet it is exceedingly important that we back up these things with generous feed and care. We have often seen the exemplification of neglect of fine specimen of sheep. I see a number of importers here to-day whom I am glad to meet, and glad to hear from, and they have seen those sheep that have been fitted up and developed to the very highest degree of perfection, in a very short time look almost like scalawags, through improper feeding and neglect. Do you know what the result of all this is? Why, it discourages breeders and buyers and those who embark in the business. They see the fine specimen and they say "all I have to do is to get a few ewes and a ram and produce those fine sheep." In nine times out of ten they make a mistake. Why? By neglect. A great many people think that sheep will take care of themselves, and that it takes no care on the part of the shepherd to keep them up to a high degree of perfection. This is a mistake, and those who try it will find out their mistake very soon.

Mr. Levering. There was a point touched upon that I would like to impress upon those present. That was, that they should keep a record of the breeding of the animals. Some of us have bred from nothing but show sheep and prize winners, and some of us have never raised a prize or show sheep from these animals. That is the experience of the speaker. Now, last year I loaned a ram that I considered second class to a tenant on one of my farms. When I came to see the lambs this year, they were far ahead of the lambs of my prize $350 show annimal. In picking out a ram, I believe in going to a man and saying: "I want to buy a ram, but first I want to see his lambs." John L. Thompson imported a ram; with him he brought twenty-three ewes from England. He picked out five and showed them at the State Fair here, and won a prize. Mr. Thompson says you can turn these in with twenty more sired by that ram, and if you can pick them out he will give them to you. Now, that is the kind of a ram to have. A gentleman from Ohio visited me recently, who had purchased a horse in Lafayette, paying for him a good price. He was a beautiful animal, but the gentleman told me that he had the worst lot of scalawag colts you ever saw in your life. Now, it is the same with sheep. The handsome animal, while he is a type, may not always breed the same. When you want to buy a ram, look at his productions.

Mr. Phelps. I endorse the paper in the main. There are many good points in it. There was one point, however, that I do not agree with, which was, that we would breed to make the wool, under the present administration, a secondary consideration. I don't know whether we should change our mode of breeding so as to make the wool a secondary matter more than we have. The present administration has done nothing as yet, only promises, and I am inclined to think that we will not be hurt any by a change in the tariff, and I don't think it would be wise to change our mode of breeding so as to make the wool a secondary matter. Wool is something that will always be in demand. Wool, as well as cotton, we must have, and it seems unwise to change, at present, our mode of breeding so as to make it a secondary matter.

Mr. Phelps, New Castle. I said I would consider the wool a secondary matter. I, for my part, want wool, pedigree and animal all together.

Mr. Cowgill. I scarcely know whether it is worth while for me to say anything or not, but I don't exactly agree with my friend in regard to what is generally called in-breeding. I have been engaged in sheep husbandry, in a small way, for more than fifty years, and my experience, in all these years, has taught me that the best flocks of sheep that I have ever raised—the most profitable—were in-bred. I give you a sample of my breeding of the last year. My lambs all came in April and May. When weaned, I took one hundred of the best and weighed them in three lots—thirty-three in two lots and thirty-four in the other lot—and they were so nearly even that the three lots weighed in exactly the same notch. It may have been an accident. The ewes and sires were both of the sheep that had been raised on my farm, and were in-bred for the last half-dozen years. I have bought a great many high priced sheep in my time, and my experience has been like Mr. Levering's—the higher the price that I have generally paid for a sheep the more worthless he was as a breeder. Now, I am merely giving you my own experience, in regard to this matter. There was another thing that I wished to speak about, and that is in regard to wool. It is not, perhaps, exactly to the point in this discussion, but I will speak of it now if you will indulge me. I think that our people are making a mistake in trying to work their flocks all into mutton sheep, and neglecting the wool-producing qualities that I think a sheep was made for. We consume six hundred millions of pounds of wool annually in the United States—about one-eighth of all the wool that is consumed in the entire world. The idea that a country like ours, consuming the amount of wool that it consumes, should neglect to produce the wool for their own consumption, seems to me ridiculous and wrong. I think we should pay as much attention to wool as we should pay to mutton. And I know that it is possible to have a good wool sheep and a pretty good mutton sheep at the same time. I don't believe that there is any sheep that is so profitable as one that has a pretty good sprinkling of Merino blood in him.

Mr. Conger. I will not talk much on this paper, for it is all right, but there is one thing I would like to ask my friend from Wabash, and that is about the price he paid for those sheep that turned out so poorly.

Mr. Cowgill. Well, I paid about $100.

Mr. Conger. I don't think you paid enough. You should have paid $350, like my friend Levering, of Lafayette. My friend from Lafayette also gave me some information that I am glad of. Now, a number of us have been buying sheep from him, but from what he says I think he must be going out of the business.

Mr. ———, of Franklin. The first sheep I ever bought was from him, and I always blamed him for it, and now he says it was my fault. I got even, however, by trading with him.

CHANGING PHASES OF SHEEP HUSBANDRY.

BY J. W. HULL, INDIANAPOLIS.

There is an infinite variety of opinion surrounding the changes now taking place in sheep husbandry as a result of the present import duty regulation, which is somewhat overwhelming to those directly interested in sheep. The manner in which it came about and the course it is pursuing, in defiance of all civil measures by the people to prevent a criminal loss, is intimidating to a humiliating degree, violently forcing stagnation upon the industry that has been king of human comfort since the world began, without which we, as a nation, depend upon our enemies to clothe us in time of war as well as peace.

As an industry we must painfully admit it is like Peter's wife's mother—lay sick with the fever; like a ship that has lost her rudder—at the mercy of the atmosphere; we have cried aloud to the wind to blow our way and land us where we used to be, but we hear the echo from the whirlwinds—we have friends across the sea.

An imposition upon ten million farmers to force a favor that is not a favor, in which there is no reality, upon a class of people who are disgusted with the folly, and who never asked for cheaper clothing. Strangling with the stench that comes with every breath from a decaying industry that is sacred to all people and adds wealth to State and Nation.

A change of this description is a violation to principles of liberty and prosperity as prescribed by statesmen who were giants in political economy.

Well, the yoke is on our necks, but we are yoked together—doomed to bite the dust of Australasia.

Passing to the technical phase of my subject: It is said that there is a cause for every effect; so we should ascertain the cause for the constant and fatal changes that impede the grace of this worthy enterprise. Let us suppose that profit actuates this continual search for a bigger yielding animal.

Such discrimination in breeding for wool or mutton would soon revolutionize our markets, encourage consumption, and the mutton industry would not be forever howling with her sore toe.

The breeder who has nerve and continuity enough to keep up the English reputation of any popular breed is the winner in the end.

I assert that the proclivity of our American flock-master to run the gamut from wrinkles and horns to snuffles and legs is the greatest impediment the sheep industry has ever known.

The changing phases of sheep husbandry are distasteful, and more should be said to prevent the changes than how to perform them successfully. There is a demand for every breed and a breed for every demand. I should urge a close adherence to one breed, cultivated to its highest perfection. Though the present may be unpromising, time is a critic that meets our equity, and, if we must wait, it can't be long until the right will kill the wrong and the pure blood will have the victory.

No discussion.

BREEDING AND FEEDING FOR MUTTON.

BY J. C. M'CAUGHY.

Mr. McCaughey. I did not expect to hear my name called from the programme, for I wrote to the Secretary and told him that I had never had any experience in that branch of sheep husbandry. Until the present year I have been able to sell my sheep to my neighbor farmers, and my attention was never called forcibly to breeding and feeding for mutton. This year I am trying a little experiment in that direction. I hope the Secretary has provided some one to take my place.

Chair. I propose that Brother Thompson give us a talk on this subject.

Mr. Thompson. I don't think I know anything but what I have told you here over and over again.

Mr. Robe. Well, tell it again. There are some new members here.

Mr. Thompson. I have had some little experience in feeding sheep, but I have concluded that a good deal of that is out of date. We are just adjusting ourselves, now, to what we think is to be the future of this industry, and, really, I don't think my experience is of very much value. The mistakes we have made in the past are to be avoided. I will say to you that you who have sheep, keep them. They have stood by us always and we expect to stand by the sheep, but we are trying to adjust our treatment to the conditions, and we think that the feeding will have to be done altogether different from what it has been in the past. Heretofore we have fed as cheaply as possible, but lately that has not given us very good returns. This season we took the most natural plan, and that is the most reasonable, and separated the sheep that are to be prepared for the winter market into small lots. This may not do for all seasons, but for this winter I am sure that we have got the best results We were led to do this from noting the fact that the farmer who only has a few sheep always has fat lambs. To get as nearly to that plan as possible, we put the lambs in a small lot where they would have plenty of grass and water, and shade in the summer, and they got fat on very little grain. We sold our lambs a few days ago, weighing ninety-seven pounds apiece. We did not get as much a pound for them as usual, not by 2 cents on the hundred, but there is some profit even in that.

Mr. Dungan. Do you know anything, Brother Thompson, about feeding wheat?

Mr. Thompson. Yes, I have fed a great deal of wheat. We don't go very much on wheat, but we usually feed a good deal of it to the sheep when it is 50 cents a bushel. It is cheaper than corn at 35 or 40 cents a bushel.

What about feeding root crops?

Mr. Thompson. I don't think we will be able to raise root crops as profitably as they raise them in England. To do that you must have a crop that you can depend on. Such a season as last would upset any one's plans.

Mr. Cowgill. Have you ever tried to raise this kind of a crop?

Mr. Thompson. No, but some in the audience have.

Mr. Cowgill. Was it a success?

Mr. Thompson. Part of the time, and part of the time it has not proven so. I got my idea of feeding wheat first from the Merino people, in Ohio. They were very successful in it. I suggested to them that we feed the bran. They answered by saying that they supposed if the bran was good the whole grain would be better, and they had their sheep in good shape.

Mr. Cowgill. Do you feed it whole?

Mr. Thompson. Yes; so far I have fed it whole. It does not pay to have it ground. One thing occurs to me that we all ought to get growing in connection with the sheep industry, and that is rye. It ought to be either a field or a lot, according to your circumstances. It ought to be sown early to get a good growth. It comes earlier than anything else in the spring, and the sheep get fat by pasturing on it up to the first of May, and then we have a fair crop besides.

Mr. Robe. Mr. Thompson, please explain a little more fully about sheep getting fat on grass, and also the quantity of wheat you would feed.

Mr. Thompson. Well, we mix the grain with either bran or oats to start on, and feed it in small quantities until they get used to it.

Mr. Tomlinson. May I ask a question here that is of very deep interest to me? and probably Mr. Thompson can answer it if any one present can, and that is, What is the reason that the high priced and choice mutton that these eastern butchers talk about is not produced in America? Why is it that they have sheep imported from South America, and Canada, and Ireland and Scotland?

Mr. Thompson. We hear a great deal about that, and I think we hear a great deal more about it than is just. I think we produce as good mutton in Indiana to-day as they do any place in the world, and I say this after careful consideration. I even think it is a little better from the fact that the conditions are more natural in Indiana than in almost any other wool growing region in the world. In England, where we hear so much about the mutton, I am sure that they do not produce any better mutton than we do here in Indiana. Of course a good deal of the mutton there is produced under ordinarily natural conditions, but the most of it is artificial. They are crowded and fed between hurdles, and it is all artificial food, and I am sure that it is no better in any respect than we get here in Indiana. We hear a good deal about Canada lambs, and, as a rule, they outsell the ordinary run of lambs from the States, from the fact that they are put on the market in strictly first-class condition. They pay a duty, and nothing but what is strictly first class comes. I have seen their lambs, and I have seen just as good lambs in Indiana. Last month we sold on our farm lambs that had never tasted grain, and they weighed 120 to 130 pounds.

Some one here suggested when Mr. Cowgill got up that he was a lawyer, but he raises sheep, and he raises them in a practical way. He was fortunate enough to win a prize at the World's Fair on wool, and the first prize at that. In speaking of Mr. Levering, for the benefit of the audience, I think you ought to understand that he handles sheep as a fancier. He keeps them as ornaments, and they have every want possible administered to, but the results are not very satisfactory, as he reports. I have never known any one who was satisfied with that sort of breeding.

Mr. Cowgill spoke of the superiority of Indiana wool, and showed the official ribbon he had received for his wool at the World's Fair over the English, and Australian wool, and said: "There is no reason in the world why we should not have all the mutton we want for our own use, and if we had a government that would give us the support that we are entitled to we would do it."

Mr. Mounts. Mr. Cowgill has said in part what I desired to say, and that is the possibility of this country to grow good mutton. I believe most of the speakers this afternoon are fancy breeders, those who are breeding for show purposes and for sale as breeding sheep. It might be well enough to have a common farmer say a few words, one who has never bred with that end in view, but simply for two purposes—mutton and wool. I have bred very extensively with these two objects in view, and by an exchange of our views in regard to growing mutton sheep we may benefit common herdsman. I grew Cotswold until I found the market for other wool. I then crossed with Merino, and the result was satisfying to me both as to wool and the mutton, and I pursued that course right along. So I think the farmer may breed for both mutton and wool. I find that while I have abundant results in the way of wool in the quality and price, and also have very satisfactory results as to mutton. As to the time of feeding for mutton, I believe you have all spoken of feeding lambs. That has not been my custom. I usually keep them until they are a year old, and then sell for mutton in the spring, and that gives me gratifying results, both in price and weight of the carcass Now that is an argument. Then when the quality of the mutton is reasonably fair, I have usually sold at four and a half to five cents a pound, after shearing in the spring. Last spring I received five cents a pound. I have a hundred yearlings contracted for next June at four and three quarter cents, after I take the fleece Now this is realizing profits that never fail. Now when I consider that in addition to this that I can utilize all that is grown on my farm, besides fertilizing and keeping clean the farm, I am very enthusiastic in raising sheep for the fleece and mutton.

Mr. Phelps. I want to ask Mr. Cowgill what sort of an animal he took this clip from that won the prize at the World's Fair.

Mr. Cowgill. He was an animal that I bred myself upon my own farm—what is generally termed Delaine-Merino wool. It was not registered. I never had one registered in my life without it was one I bought for breeding purposes. In the first place, General Rusk wrote me a year ago last spring asking me to send him a sample of my wool I don't know how he found out about my flock but I think our friend, the Secretary here, informed him about it.

Mr. Robe. Yes, it was through me he knew of it.

Mr. Cowgill. I sent it and he sent it to E. G. Green, of Philadelphia, who had something to do with wool at the World's Fair. Mr. Green acknowledged the receipt of it, wrote back to me that it showed very extraordinary breeding, and was equal to the best quality of Delaine wool that was grown in Australia. I supposed that was the end of it. Along in February or March I received two or three letters asking me to send some wool to the World's Fair. I was asked to shear the sheep right away and send the fleece. I didn't do it then as the weather was cold, and I didn't like to shear the sheep; but after being pressed to do so I went out to the barn and selected three of the best in the flock and had them sheared the first week in April and sent the fleeces to the World's Fair, and that is all the attention I ever paid to it until I got notice that I had been awarded the prize. They were what is called Delaine-Merino wool.

HOW TO SELECT A RAM TO HEAD A FLOCK.

J. F. HIGGINS, NEW MAYSVILLE.

Mr. President, Ladies and Gentlemen:

I am here to-day under a series of the most unfortunate circumstances imaginable. First, I have had a year of sickness in my family. Second, it is very hard to write up a subject which ninety-nine out of every one hundred are talking against. It is so much easier to write on an inflated subject, one that everybody is helping along; you gain so much outside aid. But help, just now, on anything pertaining to sheep industry, is out of the question. Third, I saw at the beginning the subject was a vast one, but utterly failed to realize the immensity thereof.

How to Select a Ram to Head a Flock! Why, gentlemen, what flock? Whose flock am I to write you of, and what kind of a flock is it? Gentlemen, does this flock roam over the sunny slopes of the south, or does it climb with afright some mountain peak of the North at the approach of strangers? Or perchance this flock belongs to the sand desert of the West. If so, it must be Merinos, in which case I resign in favor of Mr. Guilliams. Or, Gentlemen, it may be Cotswolds, of which I am also in total ignorance. In fact, Mr. President and gentlemen, did this flock belong here in Indiana, Ohio or Kentucky, over whose vast blue-grass pastures I have wandered, looking at many of the finest flocks of the different breeds, I could not write you "How to Select a Ram to Head a Flock." I feel my total incompetency for such an undertaking. The subject looked at the beginning as a small hill, but now it has grown to a vast mountain, upon which a great volume might be written, specifying all the different breeds and giving their several characteristics, or may be I should simply say, select one with hair for a covering in place of wool, the good warm coat given the dumb brute as a protection from the cold, bleak winters, of which man, by superior intelligence, often robs him and makes the clothing that should protect the mortal bodies of all God's people.

But, Mr. President and gentlemen, I will tell you how I selected a ram to head my flock. I first bought a ram lamb, a good one, but a little too fine. I raised very nice lambs, but a trifle small. That was not just to my taste, so I next bought a very large yearling. Now my lambs were larger; but I had a great deal of trouble and quite a loss, as I found he did not cross well with my fine little ewes. Now experience began to play a part, so I selected my best and larger ewes and I then bought a large medium ram, one standing on a good straight set of legs, a large and well developed chest, heavy shoulders, long neck and head away up, a good back, a straight hind leg, but deficient in round of hind quarters, a fleece from nose to hoof. Now from this cross I have raised my ideal lamb. One in 1892 took nine first premiums and was not beaten; two in 1893 that took every premium shown for.

Now, I believe that every shepherd should study well before purchasing a flock, and fully understand what kind of sheep will pay best in his locality, and then, if possible, to beg or borrow experience from some reliable breeder in selecting his foundation stock, after which much depends upon the care and attention given.

But in conclusion I will say the very best to be had in any of the different lines of breeding, are none too good. The better the stock ram the better the investment will pay financially.

Mr. Conger introduced a resolution asking for a meeting to discuss the tariff. Mr. Cowgill and Mr. Phelps appointed to present this to the other societies in session.

THE SIGNS OF THE TIMES, AND WHITHER IS THE SHEEP INDUSTRY TENDING?

BY HON. J. A. MOUNT, SHANNONDALE.

Mr. President and Gentlemen of the Indiana Wool Growers' Association:

The topic you ask me to discuss is one of vital moment. The signs of the times forbode evil to wool growers and indicate serious damage, if not partial destruction, of this great industry. This conclusion is forced upon us by pending legislation unfriendly to our interests.

There is another and a more hopeful aspect of this subject found in the increased demand for wool and mutton, and the necessity for diversified and more intense system of farming. The latter makes a forcible appeal for the multiplying of our flocks to meet this rapidly growing demand. Our impoverished soil appeals to the farmer for more "golden hoofed sheep," that our land may be richer and our farms cleaner.

Mr. President, I shall address myself first to the threatened danger now pending. I shall be forced, from an economic standpoint, to consider the effect of pending legislation upon the wool interests. In my wide experience in farm institute work, I have scrupulously avoided any reference to any economic policy about which there was any political difference. In the discussion of "Profits of Sheep Husbandry," I have avoided any mention of tariff, and refused to be interrogated on that subject. These are held under provision of the statute, and any question of party legislation should be avoided.

This, gentlemen, is a meeting of wool growers to discuss in all its bearing any legislation for or against us, whether protection from foreign wools or home grown dogs, or for better quarantine regulation looking to the suppression of infectious or contagious diseases.

THE SITUATION.

In the National Congress measures are now pending, upon the decision of which, in large degree, depends the future profits of wool growing in this country.

The Wilson Bill, now pending, proposes to open our markets to the free importation of foreign wools. This seems to be the fixed policy of the dominant party. It was urged in President Cleveland's message in 1887. Its enactment was sought in the "Mills Bill," renewed in the "Springer Bill." In both the foregoing instances its enactment into law was prevented by the opposite party in the Senate. There now seems no legislative power to prevent the passage of a law that unjustly discriminates against the wool growers of this country.

FREE IMPORTATION OF WOOL AND THE RESULTS.

President Cleveland, in his message in 1887, frankly admitted that free wool would reduce the price from ten to twelve cents a pound. He said: "If the liberal estimate of six pounds be allowed for each fleece, the duty thereon would be sixty or seventy-two cents, and this may be taken as the utmost enhancement of the price to the farmer by reason of this duty. Eighteen dollars would thus represent the increased price of the wool from twenty-five sheep, and $36 that from the wool of fifty sheep."

Following the above, Mr. Cleveland argued that the farmers not engaged in wool growing had no interest in sheep husbandry. This argument (and it is the one in stock) is an illusive theory disproved by every principle of economic reasoning.

Take from this industry the 1,020,000 flock masters, take the $400,000,000 invested in flocks, grazing lands, barns, etc.; turn the attention of these flock masters and utilize this capital in growing more grain, cattle, horses, etc., and to the already low prices you will add increased stagnation. The supply of these products are now in excess of the demand in all the markets of the world. Hence every farmer in the land will feel the ruinous effects of any law that cripples or destroys sheep husbandry.

But the question is often asked, what have the farmers of the United States to fear from foreign wool growers? We answer emphatically, nothing, if conditions were equal. Give to our wool growers what Great Britain gives to the Australian wool grower, and we will ask no greater favor. Give us free lands and exemption from taxation and we will become exporters of wool. This country can not give us free land, it can not exempt our flocks from taxation, but it can, and every consideration of economic wisdom and justice demands that the present system of protection should be maintained.

To bring before this body some of the favors bestowed by the British Government to the Australian wool growers, allow me to quote from page 30, Special Consular Reports on Australian Sheep and Wool: "Executive orders and legislative enactments were made to foster this industry in every possible manner. In addition to sales at low prices, long leases at nominal rents, and grants of land upon most favorable terms; appropriations and loans of money from the public treasury, were made for the carrying out and enforcement of regulations and laws, which were enacted for the destruction of vermin, exterpation of the scab, foot-rot, etc."

Here the fostering care of Great Britain is set forth, and is of greater value than all the protection accorded our wool growers. Page 96 of the same report reads as follows:

"A certain amount of diversity of opinion seems to exist among the political economists of the Colony as to the soundness of the prevailing custom of allowing large tracts of land to be occcupied for sheep breeding purposes. One party leads a crusade against a state of industrial interests which countenances the existence of a class occupying vast territories almost for wool growing purposes alone, and clamors for small holdings and the introduction of enterprises in other directions. They look upon the great strides taken by the wool interest with aversion, prophesying that the day of retribution must come when those who have given over State property (*i. e.*, the land,) to sheep cormorants will be guilty of treason to the country. On the other hand, we have the supporters of this enormous interest, content to refer the malcontents to facts, figures and results, and maintaining that an immense continent like Australia, carrying a population of less than two to the square mile, and possessing but narrowly developed resources, could not possibly be worked to greater advantage than in the lines which, by their devotion to the production of wool, they have proven both remunerative to individual interests, and a source of great revenue to the government."

I have quoted at length to show how governmental aid is given to foster, encourage, stimulate, develop and build up this enormous interest in Australia, and to further show to any reasonable, candid, honest mind that our conditions as wool growers and those of this vast colony bear no comparison. In the face of the foregoing array of facts will any true friend of sheep husbandry in this country say that our farmers, on high priced land, heavily taxed, can compete with wool growers on free land, untaxed flocks, and "six-cent-a-day labor"? "Free wool" means turning over our markets to the fostered "sheep cormorant" of Australia to augment their "individual interests" and prove "a source of great revenue to the commonwealth."

The results attending the fostering care of sheep husbandry in this colony have been marvelous. In 1860 but 13,000,000 sheep, in 1891 increased to 119,924,062 (see p. 103 Consular Report), a gain of more than 900 per cent. The increase of the last eleven years equals the aggregate of our flocks at this time. Those who argue that wool was higher in price prior to 1860 than of recent years will find the reason in the wonderful increase in the world's number of sheep and product of wool. The world's production of wool in 1860 was 950,000,000 pounds; increased in 1891 to 2,456,773,600 pounds.

While examining the New South Wales exhibit of wool at the World's Columbian Exposition I was much interested in the enthusiasm manifested by the exhibitors. They painted in glowing colors the advantages they possessed for the growing of sheep and wool, representing that wool could be profitably grown and prepared for market at ten cents a pound.

South American wool growers are afforded conditions for cheap production of wool far superior to that offered our farmers in this country, and with flocks aggregating nearly double our own and exporting near 400,000,000 pounds of wool annually, is another factor potent for evil if wool is admitted free.

THE LAW OF 1883 AND ITS UNFRIENDLY CONSTRUCTION.

This law but slightly reduced the duty on classes 1 and 2 of imported wools, while class 3 (carpet wool) was reduced to 2½ cents a pound. By an unfair construction of the law clothing wools, which should have paid 11 and 12 cents a pound duty, were admitted as carpet wool, thereby defrauding the government and damaging the wool grower. This law and its unjust construction has caused a rapid decrease in the number of sheep and the production of wool. In 1884 the number of sheep in this country was 50,626,626. In 1889 the number had declined to 42,599,079, a decrease in five years of 8,027,547, with a decline in value of $29,000,000, (See report of Secretary of Agriculture for 1889, page 244.) The Secretary of Agriculture in his last annual report on pages 245-248, inclusive, discusses at length the evil effects of the construction of the law of 1883, and shows that in the six preceding years more than three-fourths of all our importations of wool were admitted as class "3." If a slight reduction of the duty on wool, together with its unfair application, has caused such havoc, how much more imminent the danger, how much more certain the ruin that must attend the passage of the law now pending.

BENEFITS OF PROTECTION TO WOOL.

The increase in number of sheep from 1850 to 1860, a period of low tariff, was from 21,700,000 to 22,000,000, or less than ⅓ of 1 per cent. per annum. The increase during ten years of high tariff, from 1870 to 1880, was from 28,500,000 to 42,400,000. an increase of 45 per cent., or 4½ per cent. annually. The increase in the clip of wool for the same period was even more marked, being from 163,000,000 pounds to 264,000,000 pounds. (See report Tariff Commission, 1882, page 2523.) Under the tariff law of 1890, sheep husbandry has taken a new impetus, and 1892 showed a gain of 2,335,188 sheep. (See report of Secretary of Agriculture for 1892, page 437.)

In 1860 there were 1,263 woolen mills in the United States with a capital of $30 922,654, consuming 83,608,468 pounds of wool, paying in wages to 43,738 employes $10,153,938, and yielding a product of $65,596,364. In 1880 factories had increased to 2,689, with a capital of $159,091,869, paying in wages to 161,575 employes $47,389,087, with an annual product of $267,252,913.

Factories more than doubled, capital increased more than five fold, giving employment to four times as many hands, with an annual product increased more than $200,000,000.

In 1870 flour and grist mills stood first in their annual production; second, slaughter and meat packing; third, iron and steel manufacturers; fourth, saw mills; fifth, foundries and machine shops; sixth, cotton manufacturers; seventh, woolen factories.

In ten years, 1880, woolen factories had passed cotton factories, foundries and machine shops and saw mills and stood fourth in importance.

From 22,000,000 sheep in 1860, yielding 60,000,000 pounds of wool, to 50,600,000 sheep in 1884, yielding 308,000,000 pounds of wool, marks an era of growth to sheep husbandry in this country that could only be attained under protection. So long as an article remains on the protected list, that article should be the farmers' wool. Industries claim protection that they may be able to compete with the underpaid labor of the Old World. The wool grower not only has to compete with the lowest paid wages, but with wool growers fostered and aided as no other interest or industry is encouraged in the world.

WHO OPPOSES PROTECTION TO AMERICAN WOOL?

Not the manufacturers as a class. It was a joint committee of national manufacturers and wool growers that submitted to the Revenue Commissioner in 1866 a report declaring, with the utmost emphasis, "that American wools are eminently the foundation, the prosperity, of the manufacturer, and that it was necessary to give sufficient protection to the wool grower." This joint committee formulated the wool schedule of the high wool protection of 1867.

A joint committee from the same national organization, sixteen years later, before the Tariff Commission of 1882, reiterated the same doctrine.

William Whiteman, representing the National Woolen Manufacturers, was asked by this commission, "why the woolen manufacturers, upon the whole, consented to the wool tariff of 1867, and became reconciled to it?" Answered, "for the reason that they believed the duty imposed would increase the growth of wool here, and establish a national industry, and in time furnish wool enough for our factories."

The President of the Tennessee manufacturers repeated in substance the same sound logic. The above statements are a consensus of the arguments of the leading wool manufacturers of this country.

FOREIGN WOOL TO MIX WITH DOMESTIC.

Some unscrupulous demagogues, presuming upon the credulity of the wool growers, have represented to them that foreign wools were necessary to "mix" with home grown, in order to produce a line of goods in large demand; therefore, "free wool" would augment the mixing process and "increase the demand and price of the domestic." The stupidity of his argument is only equaled by the dishonest purpose that prompted it. The late Secretary of Agriculture, General Rusk, than whom no truer friend or abler advocate of the farmers' interest ever held position in our government, said in one of his reports: "Possessing as we do varied climates and conditions of soil, we can successfully grow any of the breeds of sheep, or quality of wool, grown in any other land or climate." He who argues for the "mix" is either ignorant of the geography of his country, its adaptability, its possibilities, or he deems the American farmer less skilled and intelligent than the Australian. This argument is akin to that made a few years ago by a gatherer of crop and stock statistics. He sent to his correspondents a petition to sign praying Congress to defeat the "Pure Lard Bill." He argued because the "compound lard manufacturers" consumed 175,000,000 pounds of the farmers' lard annually in the "mix with cottonseed oil," therefore they, being large purchasers, were the farmers' friends. Many farmers were duped into signing his petition that prayed Congress not to disturb the "cottonseed oil trust," but allow them to continue to supplant the farmers' lard in the market; hence lower the price by excessive supply and augment the profits of the trust.

The "mix of foreign wool" will supplant the home grower to his hurt and damage and add to the gain of the foreigner.

It may be philanthropic, it may be neighborly, for the American lamb to "mix" with the British lion, but it is not business, as the mix will only add to the greed of the lion and the loss of the lamb.

Mr. Whiteman, President of the National Woolen Manufacturers, said: "There were no wools in the world that could compare with the great bulk of American wools." The American Consul at Sidney, New South Wales, G. W. Griffin, in his report to the Department of State, March 23, 1891, said: "The samples of American wools sent to the International Exposition at Melbourne, were admitted by experts to be superior to anything of the kind ever grown in the Colonies."

Charles Fletcher, of the Providence worsted mills, in a letter to the Boston Home Market Club, dated February 18, 1891, said: "The talk of mixing Australian wools to make a line of goods required by this market is all nonsense, as Australian wools are only largely used because they are cheaper."

FREE RAW MATERIAL.

Why place the farmer's wool in the same class as ore in the mountain, coal in the mine, or timber in the forest? Wool is a finished product of the farm, manufactured from crops costing labor in their production, and requiring skill, intelligence and attention in the manufacturing. The present policy is not akin to that which prompted General Jackson when he wrote, under date of April 26, 1824, to Dr. Coleman, of North Carolina, in which he used these memorable words: "Providence has blessed us with the means of national independence and national defense. If we omit or refuse to use the gifts which have been extended to us, we deserve not the continuance of His blessing. He has filled our mountains and plains with minerals, with lead, iron and copper, and given us climate and soil for the growing of hemp and wool. These being the greatest materials in our national defense, they ought to have extended to them adequate and fair protection."

THE INFLUENCE AND POWER OF WOOL GROWERS.

Following the passage of the law of March 3, 1883, the Democratic party of the State of Ohio, through the State Executive Committee, arraigned the Republican Congress and Republican President for amending the law of 1867, and reducing the duty on wool, said:

"The wool producing interest of the United States government has a perfect right to demand—

"1. That it shall receive as much consideration and encouragement as are shown to any other interest whatever.

"2. That as a protection, by means of taxing importations of raw wool, has thus far proven highly beneficial to the farmers of Ohio, as evidenced by the continuous increase in number and value of their flocks, this protection shall not be withheld as long as a protective policy is pursued by the United States.

"3. That if any discrimination be made in favor of particular industries as against others, this discrimination shall not be made against the wool industry.

"What will be the results?

"Plainly it can not fail to be disastrous."

Upon these solemn promises to the 100,000 wool growers of Ohio, the Democrats elected the Governor and Legislature. This Legislature passed resolutions instructing their Congressmen to vote to restore the wool tariff of 1867. The same party in their State convention, June 25, 1884, passed as the third resolution of their platform, the following:

"That the just demands of the wool growers of Ohio and the country for an equal readjustment of the duties on wool (unjustly reduced by a Republican Congress), so that this industry shall be fully and equally favored with other industries ought to be complied with."

How changed in ten years! What a significant lesson has been taught! The party leading in the championship of the wool growers was then victorious. The same party in 1893, having abandoned the wool growers and assumed an attitude hostile to this industry, merited and received the rebuke of the 100,000 flock masters in that State last fall.

The policy that is now *threatened*, and by its *impending danger* sending sheep to the slaughter and has reduced the price of wool, justly deserves and will receive the rebuke of the 1,020,000 wool growers of this country.

THE HOPEFUL SIDE.

I have dwelt at length upon the economic side of this subject. I have endeavored to present the environments at home and the conditions abroad that have to do with the wool interests of our country. It is not necessary to acquaint the intelligent sheep husbandman with these facts and the trend of the sheep interests. Prices of wool, the sacrifice of flocks, sounds the note of alarm. The pendulum is now swinging to the reverse side of this industry. The momentum that will be acquired in the extreme reverse sweep will rebound in its favor. I predict in less than five years prosperity will again return to flock masters. The farmer who sells his flock at ruinous prices will be in the market as purchaser when the pendulum has vibrated to the other extreme. The American people possess too much wisdom and patriotism to see the destruction of this great agricultural industry.

The intelligent farmer realizes that to secure the best results in farming, sheep husbandry is indispensable.

The consumption of wool in the United States in 1840, was but 76,796,130 pounds, or four and a half pounds per capita. In 1890, 548,398,374 pounds, or nine pounds per capita.

The consumption of mutton per capita, has increased at a far greater ratio. We now consume over 12,000,000 sheep annually.

It would require near 100,000,000 sheep to supply the demands of our market for woolen wares, etc. We should have on our Indiana farms 4,000,000 sheep, instead of less than one-third that number. Our farms as a result would be richer, more inviting in appearance, and the profits would be increased. I shall continue to grow sheep, combining wool and mutton. If legislation is adverse, I shall endeavor to meet the adversity with more intense determination to succeed, inspired with the belief that no policy adverse to this great industry can long survive in this country.

DISCUSSION.

Mr. Cowgill. I do not see that Senator Mount's paper could be very much improved. It is certainly so good, and there is so much truth in it, that before I take my seat I shall move that this society have it published for distribution among the sheep men and the farmers of the country. In addition to what Senator Mount has said in regard to this matter, and in regard to the advantage in the way of making our lands richer and more fertile, I wish to advance another idea that has frequently occurred to my mind. Now it is a fact that every individual who has given very much attention to this matter knows that our country is dependent, measurably dependent upon the agricultural exports that go from the country abroad to keep the balance of trade running largely against us. Then everything that will make your lands more productive, and will enable you to increase the agricultural products of the country, helps to keep the balance of trade in our favor instead of against us. That is a thing that has occurred to my mind frequently in thinking about this matter. If we are to confine ourselves, we farmers—I speak of myself as a farmer, for I do nothing else now, and am a very poor one at that—if we confine ourselves to raising grain, how long will it be until the lands are so exhausted that we can not raise more than a half crop? Another thing is, if you break down the wool growing industries of this country, my word for it the manufacturing of wool is going to be broken down also, because the same principle that will operate to break down the one will operate to break down the other. If you drive all the employes out of these two pursuits—wool growing and the manufacturing of wool—you destroy that source of labor for that large number of laboring persons that are in our country, and disable you from finding a market for the produce of your farms. Now, the Democratic party say to us, we will have the markets of the world. We have the markets of the world to-day for our wheat, and what is it worth? Fifty cents a bushel. And one of the reasons why it is so low, is that the laboring classes of our country are without employment and are starving, and have not the wherewithal to buy our wheat and pay a fair price for it.

Mr. Garvin, Fairview Stock Farm. I should like to know to what extent the wool industry has increased from the passage of the McKinley bill until 1893? Also, will Mr. Mount answer me another question? Does he believe sincerely that in the total revision or abolition of the duty on wool that the wool will decrease in price to the difference between the present schedule, 12 cents, and the present price, 15 cents?

Mr. Mount. I take pleasure in answering the first question. When the McKinley bill passed, in 1890, the number of sheep in the United States was forty-two million, and something over. We had an increase in 1892 of nearly three million sheep. We have shown by the last report over forty-seven million sheep, an increase from forty-two million. He asked me if I believed the price of wool would be reduced precisely to the amount of protection. Mr. Cleveland said it would reduce the price of farmers' wool 11 to 12 cents a pound. Another question was this: They ask us sometimes why wool has decreased in price since the passage of that law. In the last three years wool has decreased 10 cents in the markets of Europe, and in this country until the present year it had not decreased over two or three cents.

Mr. Garvin. It is my opinion that it makes all the difference in the world as to what kind of glasses a man looks through in a case like this.

Mr. Louis Schneck, Seymour, Ind. I used to be a member of this Wool Growers' Association, but I got out of sheep and have neglected it lately. I have, however, recently imported a large flock of sheep, and have renewed my membership to-day. I am well acquainted with a small woolen mill in Southern Indiana. Now, to run that mill I think it takes the fleeces of 17,500 sheep, averaging six pounds a fleece. I consider that farmers have a larger expense with the sheep than the manufacturer. They have to raise the feed for them and give them the necesary care and attention. None of the sheep escape taxation, while if we raise grain it is usually sold off before it is listed, and so are the cattle, but the largest portion of the sheep with the wool on are listed. Then he has to pay taxes on the land. About mixing wools, I wish to say that I have had considerable experience in manufacturing, and the only manufacturer I ever met who said it was necessary to mix foreign wool with American wool was a manufacturer of burial cloth; that is, the cloth that covers coffins, and he said he had to have Australian wool for that.

Mr. Guthrie. I move that as all the sheepmen are not present, that this paper of Mr. Mount's be printed for free distribution.

Mr. Dungan. I move that it be published in the "National Sheepman," and other papers of that sort, and they will all see it. We may have to use our funds for other things. If we get it for free distribution in pamphlet form, it will cost considerable money.

Mr. Cowgill. I think it is so good that we can afford to contribute whatever it will cost. I am willing to pay my share and more than my share.

Mr. Robe. I am in favor of this motion simply for the purpose of having an expression of this meeting, and then let it be referred to a committee.

Mr. Conger. Mr. Hull says that if all the gentlemen will subscribe for his paper he will publish the proceedings of this meeting free. I think that would be the best way.

The Chair. The question is upon a motion to publish this paper of Mr. Mount's to be sent out over the State.

Motion seconded and carried.

Mr. Schnect. I would suggest that the "Indianapolis Sentinel" and "Journal" be requested to publish it.

Mr. Guthrie. I move that it be referred to a committee of three, and let them use their discretion as to how it shall be published.

Chair appointed Mr. Guthrie, Mr. Strange and Mr. Dungan as a committee for this purpose; Mr. Guthrie chairman of such committee.

Committee consisting of Mr. Levering, Mr. Thompson and Mr. Dungan appointed to report on programme for next year.

SCAB IN SHEEP.

MORTIMER LEVERING, LAFAYETTE.

At the present time this malady is second only to one other disease that justly requires the greatest attention and thought of sheep breeders. Scab in sheep is the leprosy of that species, and when an animal is once afflicted with it, and if started but the size of a pin's head it is only a question of a short time when the animal and its associates in the fold must as surely succumb to a horrible and distressing death as those who are lepers among the human race. And while the sheep can not cry out, "unclean! unclean!" let the owner, from a humane standpoint if not a pecuniary one, cry out the warning note of "unclean! unclean!" that as nearly as possible others may not come near, either in the fold, the adjacent pasture or the common highway. But it is not necessary to isolate or rather relegate this helpless animal to a lepers' island or a slow death, but succor it from its torments by easy methods within the reach of every farmer, if he will but apply the remedy. Let us first make a diagnosis of this evil. The disease, or it may more properly be termed "affliction," is scientifically known as "Acariasis," from the name Acari, which signifies the whole family of scab insects in general. Sheep are afflicted with three distinct species: Sarcoptes scabici, or scab of the head; psoroptes communis, or common scab; chorioptes communis, or scab in the feet. The term "scab" is a poor term to apply to this trouble. It is simply a parasite or insect working on the skin of the sheep, and may be more readily understood by all if it were called "the mad itch insect." When men are told that disease is often caused by animalculæ in clear water, they are curious to know what sort of a hydra-headed dragon this invisible monster may be that has the power to bring them low with fevers and loathsome maladies. So the most powerful microscopes are brought into requisition, and the microscopist delineates on the paper the male and the female, with a minute detailed description of the "mandibles," "antennæ," "trochanter," "femur," "tibia," "tarsi," both "anterior" and "posterior," and a hundred other like terms, showing conclusively that these animals are really live terrors and not myths. After this these men feel better satisfied, knowing that when they are drinking clear spring water they can see in their mind how the creatures look, and just how many there are to the drink, and we may say that countless myriads of them are oftentimes destroyed by the same instrument that Samson used to slay the Philistines. And that this inquisitiveness of some wool-growers may be gratified, we hold up before you a chart showing the male and female common scab insect.

Doubtless this is the only form (on paper) in which you will ever view them individually and relatively, as they are divided in the two sexes, as in reality they are invisible to the naked eye.

Figures are also very consoling, and taken as indisputable evidence. Then let us say that the female of this industrious and prolific little pest lays about fifteen eggs in the wool, which hatch in two or three days and become full-grown adults in fifteen days. It is said that the produce of one female scab insect will number a million and a half in three months. If any one here is fond of calculating, let him determine in what number these insects will take hold of a flock when they have a beginning. Just as soon as a sheep becomes infested with the scab insect, it will begin to rub its body against any resisting object. As the scab increases, the sheep will rub more and more, locks of wool will begin to loosen and hang out over the more compact part of the fleece; finally the sheep will bite its body in mad agony. Ultimately the whole fleece will come off, the outer surface of the body will become a solid mass of sores, with red and yellow surface, the poor animal burns with a terrible fever and itching, and suffers too much to think of eating or drinking, and it falls from exhaustion and dies a death too horrible to believe. The so-called scab is formed by the bite of the insect producing a tiny elevation on the skin, filled with an aqueous serum or fluid. This bursts from inflammation, and the matter dries and forms a scab, under which these insects live and bite into the flesh, depositing a virus that poisons the skin and causes more and more of these little corpuscles to form, and they multiply with the increasing numbers of the insect, limited only by the surface of the animal it works on and the time it can endure the torture.. Men unacquainted with the trouble are apt to pay little attention to it when it appears on one or two sheep, and by neglect let it infest every sheep in the flock before they seek to remedy it. Then, if the weather be cold, they often ask the question, Will it do to dip sheep when it is so cold? Let us say, dip, dip, any time, all the time, whether the temperature is zero or summer heat. Pay no attention to wind, rain, heat, cold, day or night—dip for humanity's sake, and for the sheep's life The cold water will be the most soothing lotion to the dry, feverish skin and the biting of millions of little suckers and claws.

Men say, What shall we use for a dip, and what shall we dip the sheep in? Let us say if you can get a prepared proprietary dip conveniently, and can afford to buy it, use that according to directions. If you live near a city go to any cigar manufactory and get some tobacco stems, they will be glad to give them to you; put these into a barrel or hogshead and cover with soft water; steep a couple of days and then dip the sheep in the liquor; add four or five pounds of sulphur and one or two pounds of lime. Lime is damaging to wool, but has very healing effects on a sheep's skin. If you can not afford a prepared dip, and can not get tobacco stems, make an emulsion of coal oil. Take a wash boiler, put in it a gallon of soft soap or five or six bars of hard soap scraped up fine; add six gallons of soft water and boil thoroughly; then add a gallon of coal oil—the cheaper the grade the better, so that it is not naptha or gasoline; stir this in slowly and mix thoroughly; then put this in your dipping tank and add twenty gallons of water. This last dip would have to be repeated once a week for three or four weeks, while with the first two named dipping twice—a week apart—will effectually eradicate the pest.

If your sheep are suffering with scab, and you are too poor to buy a few cents worth of dip and too lazy to use it, gather them all together and knock them in the head, pile them up and burn them, for you will only hasten a certain death, and when you cross the dark river you will not be held accountable for letting poor, innocent animals in your care die a death of lingering torture.

The scab is an infectious and contagious disease, and is subject to the surveillance of the State Live Stock Sanitary Commission, and when any cases are reported to them will receive attention and the sheep be treated to a curative treatment or the owner a more heroic one.

Dip, dip, dip,
    When the sheep begin to scratch,
    Or when wool begins to patch.

Dip, dip, dip,
    To kill the lice and ticks,
    Or the cruel scab that sticks.

Dip, dip, dip,
    To save the sheep from pain
    In sunshine or in rain.

Dip, dip, dip,
    While in summer's hot glow
    Or in the winter's snow.

DISCUSSION.

Mr. Dungan. Do you always shear before dipping?

Mr. Levering. No.

Mr. Robe. I would like to ask Mr. Levering about the use of carbolic acid.

Mr. Levering. I don't like to advertise any particular kind of dip. Some dips have an advantage over others. There is a preparation, Chloral Menthol, I think very favorably of. This adheres to the wool and will prevent sheep from picking up the scab from pieces of wool.

Mr. Robe. I asked the question because my sheep had a good many ticks on them, and I took one dollar's worth of carbolic acid and fifty gallons of water and dipped them all.

Mr. Hagie. I would just like to ask the motive you have in dipping the sheep. I would like to hear from any member of the association.

Mr. Levering. Of course, killing ticks on sheep and scab are two different things. The scab insect goes under the skin and there works, and to make the carbolic acid so strong as to kill these insects would make the sheep sick. There are other preparations that will poison the insects. I believe the cheapest dipping tank you can have is to go to a hardware store and have a galvanized tank made, and then fix up a dipping-board. We find that the easiest way to handle the sheep is to pick him up by his legs and dip him in back downward. You should hold your hand tightly over the mouth and eyes.

Mr. Hagie. Last year I bought two breeding rams, and in the winter my sheep began to rub. Every time I came home I was told that there was something the matter with my sheep. I had never had anything of the kind before, but in the spring some of them were entirely bare, and I began to inquire into the case. I then concluded that they had scab, and prepared for it. I had a dipping tank made. It cost me thirty-one dollars to have the tank and dipping pen made. It was sixteen feet long, five feet deep, eleven inches wide at the bottom and twenty-two inches wide at the top. One end slopes a little more than the other, with cleats in it for the sheep to walk out. I use the Black Leaf Dip, made in Louisville, Ky. It takes about a half gallon to a barrel of water. We can dip 130 sheep in about two hours. There is a good deal of work about it. After immersing them in the liquid let them into the dripping pen. In about two weeks we saw a decided improvement, but dipped them again, and I think they are free of the scab. I am not a member here, but came in from the Shorthorn Breeders' meeting, and wished to give you the benefit of my experience.

Mr. Lockhart. I have just come over from the Board room. I feel very much interested in this meeting, being, as a boy, raised among sheepmen, and being interested myself. Last year my attention was called to a new preparation for the eradication of insects from sheep, and for curing scab. It is made in New York (it is called the Corbal Crystal Dip) by a company called the Macie Roofing Company, of New York. They sent me some a short time ago, and I find that in using it and putting it into water it turns it milk white. Those who have used it say it is the most effective thing for the curing of scab. I will give the address to any one who wishes it.

Mr. Phelps. I have used the dip that Mr. Levering speaks of, and I ask him if it would not be a good thing to dip if there was no scab, for the benefit of the flock.

Mr. Levering. In using different dips some consideration must be had to the poisonous qualities. Some time ago we dipped a lamb and he went to a corner of the yard and the dip dripped on some leaves, and he afterwards ate them and died in a few hours. The dip I spoke of is good for sheep and also for chickens; but if you have any idea of eating any of those chickens within three or four weeks, better not use it, for it adheres to them and can not be scalded off.

Mr. Dungan. I have not heard much said about the cause of this terrible disease, and I think it would be well if some one who understands these things would tell us about it so we can guard against it. I have seen sheep, large flocks of them, afflicted with it, and I never want to see the sight again. Now if some one will tell us how to prevent this, if there is any prevention for it, it certainly would be a good thing for the flock masters of this association.

Mr. Levering. Dip your sheep any time The sheep are liable to pick up the disease at any time. It comes chiefly from freight cars in which sheep are shipped. It first came from tropical climates. These sheep are shipped in cars, and they come right through your farms, and there are pieces of wool in them that may be swept out, and your sheep go across that place and pick up the disease. I would say dip your sheep about four times a year, and then you will prevent it.

Mr. Tomlinson. I had this disease on my farm once, and I cured it mainly with tobacco. It makes me sick every time and I don't like to use it. If any of you know of a dip that is not poisonous I would like to have the benefit of it. I intend to buy a dip next time, but I don't know what to buy. I don't want to buy the kind of dip that killed the sheep of Brother Levering.

Mr. Levering. I think it is all poisonous.

Mr. Phelps. Some one asked how to prevent it, and we got it from a freight car, from some show sheep that had been shipped in such a car. In two weeks after that time we noticed it in the flock, and cured it by one dipping in the Louisville Black Leaf Dip.

Mr. Tomlinson. A number of my neighbors had scab in their flocks, and the greatest difficulty was in getting something to dip them in. I made a cheap wooden box and had it lined with zinc. It will only dip one at a time. It is narrow at the bottom and wide at the top. Any one can have one made for three or four dollars that will dip one hundred sheep in an hour or two.

Committee of three appointed to select expert judges, Messrs. Robe, Phelps and Williams.

Announcements.

Adjourned.

JANUARY 3, 1894.

Convention called to order by the chairman.

Mr. White. I am reminded that we have had taken from us by death, a neighbor whom I loved, and was, as I believe, a charter member of this association. I have reference to Mr. Pendleton. I move that some action be taken respecting his death.

On motion Mr. White and Mr. Cowgill were appointed as a committee to draft resolutions of respect.

Nine dollars and thirty-five cents was allowed Mr. Robe for expenses as secretary.

Report of Committee on Expert Judges: J. L. Thompson, Marion, Ind.; Uriah Privett, Greensburg, Ind.; C. A. Phelps, New Castle, Ind.; J. R. Tomlinson, Fairland, Ind.; I. J. Williams, Muncie, Ind.; T. C. Phelps, Greensburg, Ind.; Cal. Darnell, Indianapolis.

J. W. Robe,
Marion Williams,
T. C. Phelps,
Committee.

Question. Is the shepherd's crook of any benefit to wool growers?

Mr. Thompson. I have never used a shepherd's crook; I don't think I have any use for it; my opinion is that for us it is a nuisance. I think we should have sheep so guarded that we would have no use for it. I can only imagine that the crook would be useful to the shepherd in the west or in England. There the crook may be useful in taking up the sheep that stray. For the wool growers of this section it is of no use whatever.

Question. At what age are sheep most profitable for feeding?

Marion Williams. The sheep that I have found most profitable for feeding are two year old wethers. I find many advantages in feeding at this age. The sheep are strong, and so much care does not have to be taken in preparing their food.

Mr. White. I would like to ask if there is anything in feeding lambs?

Mr. Williams. There is some money in feeding lambs, but I think more especially in feeding small lambs, however, never buy a stunted lamb for feeding, or you will certainly loose money.

Question. Should our ram lambs be castrated?

A short discussion took place on this topic, and the opinion seemed to be general that for best results and least inconvenience to the farmer, the ram lambs should be castrated at an early age.

Question. Would you confine sheep or keep them in herds while feeding for the market?

Mr. Thompson. I have fed sheep in herds, and they have done very well, though some prefer feeding in small herds, and confining them at feeding time in small enclosures or in stables.

Mr. White I am satisfied that the better plan is to keep them confined in small enclosures or in stables while feeding. I speak from experience, and strongly recommend small enclosures.

Question. At what age would you wean lambs to best prepare them for the fall and winter market.

Mr. Miller. I have observed that it is best and most profitable to sell them from the ewes. Lambs will always shrink some after weaning, which must be taken into consideration, as the markets at this time of year are usually low. I believe the man who sells from the ewes gets the best profit.

REPORT OF COMMITTEES.

Committee on Program—Program for 1895:

President's Address.

Secretary's Report.

Treasurer's Report.

"What Has Cross-Breeding Done for the Sheep Business in Indiana," by H. B. Howland, Indianapolis.

"Best Mode for the Common Farmer to Handle Sheep," by J. M. Harshbarger, Crawfordsville.

"Little Things in Flock Management," by Marion Williams, Muncie.

"How Much Can the General Farmer, That Breeds Sheep for Wool and Mutton, Afford to Pay for His Stock in Gross?" by Isaac Powell, Zionsville.

"What Advantage Did You Find in Handling Pure Over-Cross Bred Sheep?" by Sid Conger, Flat Rock.

"Is the Formation of Grade Flocks Practical at This Time?" by T. C. Phelps, Greensburg.

Resolutions respecting the death of Mr. Pendleton, presented by the committee:

Resolved, That we have heard with great sorrow the death of the Hon. A. V. Pendleton, who was for many years a distinguished member of this association, and who was also a good citizen and faithful to every trust committed to his care.

RESOLUTIONS DENOUNCING THE WILSON BILL.

WHEREAS, A tariff bill has been introduced in Congress known as the "Wilson Bill," which grossly discriminates against the farming interest by placing on the free list twenty-nine of the finished products of the farm, which twenty-nine articles are now protected by fair and equitable duties; and, also, a large reduction in the duties now properly assessed on twenty-one other finished products of the farm; therefore,

Resolved, That we denounce said Wilson Bill as unjust, unwise and uncalled for, and we invite all farmers everywhere from Maine to California to join us in denouncing said Wilson Bill and, regardless of former party affiliations, to join us in pledging ourselves to vote against any man who shall vote for or favor the Wilson Bill or any similar measure.

Resolved, That a copy of these resolutions be sent to each of our Senators and Representatives in Congress.

ELECTION OF OFFICERS.

Officers-elect for 1894-95—

President—Mr. Tomlinson.

Vice-President—Cal. F. Darnell.

Treasurer—J. L. Thompson.

Secretary—J. W. Robe.

Executive Committee—Sid Conger, Cal. Beeler, H. B. Howland.

Convention adjourned to meet again at call of President.

MERINO THE GENERAL PURPOSE SHEEP OF THE WORLD.

A PAPER READ BEFORE THE INDIANA WOOL GROWERS' ASSOCIATION JANUARY 13TH, AT INDIANAPOLIS, BY JAMES A. GUILLIAMS, FINCASTLE, IND.

Mr. President and Gentlemen of the Wool Growers' Association of Indiana:

I am well aware that in advocating the merits and good qualities of the Merino sheep I stand almost alone in this association, and I expect that here in Central Indiana there is less interest taken in breeding and rearing the Merino sheep than almost anywhere else in the world.

But one great privilege we Americans have is the right to advocate our views on all subjects. And in presenting our ideas and experience on our favorite breeds of sheep we should do so in a friendly manner, without any malice whatever toward our brother shepherds. I am a lover of all breeds of sheep. I believe all sheep are profitable to man if properly handled.

THE MERINO.

The second man born into this world, according to Bible authority, became a shepherd. As far back as we can trace the pages of ancient history we read of the shepherd and his flocks. We find that away back in the days of Jacob and the old patriarchs sheep were kept for the fineness of their wool, for sacrifices and to furnish food for man. Tristram pastured his sheep in the ancient plains of Moab, and boasted of counting 30,000 in his flocks. Also, the first trumpets that were used in the wars of ancient history were made of rams' horns. The Merino must have been there. But coming down along the stream of time, historians and travelers of the old countries tell us that wherever sheep are raised the Merino is there, whether it be in the deserts of Africa or the flowery fields of Italy, among the vineyards of France or Spain, the low lands of Germany or Holland, the bleak plains of Russia and Siberia, or among the snow-capped mountains of Switzerland, the Merino can be found in all his glory.

According to Stephen Powers, in his book on the American Merino, Mr. Seth Adams imported the first pair of Spanish Merinos to the United States for breeding purposes in the year 1801, bringing them from France to the State of Massachusetts. For the next ten or twelve years large importations were made. They commanded enormous prices, lambs selling at $1,000 each, and pairs of grown sheep sold at from $2,000 to $3,000 per pair. From that time up to the present day they have grown and thrived and multiplied. They have had their ups and downs. Their wool has, at times, sold at extravagant prices, and at other times it has been low, but considering their vast numbers throughout the world it is no wonder their wool is low.

About ninety-five per cent. of the sheep in the United States are pure-bred Merinos or their grades. They are the most numerous of any other breed of sheep in the world. We are of the opinion that were the long or coarse-wool breeds of sheep as numerous as the Merino, their wool would not pay for the clipping of it from their bodies. The Merino has proven himself adapted to almost all climates, all soils, and for all purposes. If there be a demand for a short, fine fleece, he can furnish it; or if the demand calls for a four-inch staple, or a fine delaine wool, he can furnish that, also. If a shepherd's fancy leads him to want a heavy, folded, or wrinkly sheep, or to the reverse, a plain, smooth sheep, the Merino will furnish either.

In my experience I find the Merino will make a hundred pounds of mutton and fifteen or twenty pounds of wool with less feed and less care than any other breed of sheep I have ever raised. They will do well in the farmers' barnyard in flocks of a half dozen, or they will thrive on the western plains among the sage brush in herds of ten thousand, whether breathing the blizzards of North Dakota or browsing among the cactus on the plains of Texas and Mexico; whether being driven for a thousand miles on foot over the Rocky Mountains, up the steep Sierra Nevada, or basking in the sunshine in the golden valleys of California. He is always ready to furnish one hundred pounds of mutton and ten to twenty pounds of wool. Several times during the past half century have a great many Merino breeders of the United States (the Old World never) abandoned their flocks, supposing the day for Merino sheep was past and gone, but just so often as they have been abandoned, just so often have the people been compelled to return to the ever reliable Merino to supply the demand for wool and mutton. And we believe the future generations will find them grazing on the hilltops and valleys of God's green earth in the innumerable thousands.

But like all other breeds of sheep, it requires both skill and labor to breed a flock of Merinos up to the highest point of excellence and hold it there. Breeders should exercise great care in selecting a ram to cross on their flocks, for in my estimation the ram is half the flock. Fine Merino rams always command very high prices. For this reason a great many buy inferior rams at a lower price, and the result is frequently very unsatisfactory.

The Merino and their grades are the mainstay of the world at the present time for wool and mutton, and we believe they will remain in the future what they have been in centuries past, the general purpose sheep of the world.

INDIANA BEE-KEEPERS' CONVENTION.

The Fourteenth Annual Convention of the Indiana Bee-Keepers met in the State House, Room 21, January 5, 1894.

The meeting was called to order at 10:30 A. M., President Russell, of Zionsville, Ind., in the chair.

The minutes of the last meeting read and approved.

SECRETARY'S REPORT.

The Twelfth Annual Convention of the Indiana Bee-Keepers' Society was convened on the 18th day of January, 1893, with President Russell in the chair. While the attendance was hardly satisfactory the meeting throughout was very interesting and also very profitable.

Number of members enrolled, 15; fees collected, $7.50.

Issued warrant on Treasurer for $5.00 to pay reporter.

The report of the convention was the best we have had for years, and I think all the members will bear me out in the assertion.

The past season in some respects was a profitable one to bee-keepers. While the losses in some parts of the State have been very many, the honey flow during white clover bloom was excellent—good strong colonies, from fifty to seventy-five pounds of fine honey to the colony. The winter, while very severe, was dry and the bees wintered well, but the mortality in my section of the State was mostly in April and May. We called the disease bee cholera. A colony would seemingly be in fine condition in the morning, and by the next morning all be dead; some colonies having a few bees and queen left, built up into good strong colonies ready for winter, but gave no surplus honey. The losses in my vicinity from the above cause were about 60 to 70 per cent. There was no fall honey, the season being so extremely dry there was no growth of vegetation, yet the bees have gone into winter quarters in good condition.

In the fall of 1892 I had 14 colonies; loss through the winter, 1; loss in April and May, 1893, reduced to 4; built up to 10; got 30 to 50 pounds to the colony. Other bee-keepers' in the county losses fully as heavy as my own.

The action of the Secretary of the State Board of Agriculture has reduced the expense of our society, he having sent out the programmes at his own expense. I have sent notices to the persons expected to have papers for the convention, also to the bee journals. Paid out thirty cents in postage.

Respectfully submitted,
GEORGE P. WILSON,
Secretary.

Secretary's report read and approved.

President. The Fourteenth Annual Convention of the Indiana Bee-Keepers' Association is now in session, and the first on the programme is the address by the President, and I believe that means my little paper and thoughts upon this occasion. In my address, as follows, I have tried to write some facts:

PRESIDENT'S ADDRESS.

Ladies and Gentlemen of the Fourteenth Annual Convention of the Indiana State Association of Bee-Keepers:

Wishing you all a happier and more prosperous new year than the old, I will hasten at once to review the object lesson of the last, perhaps the most wonderful year of a life time, so discouraging, and yet so encouraging, at the close of the season. A late and unexpected honey flow from the fall flowers of 1892 gave the bees much unsealed, unripened honey, which was stored directly in the combs vacated by the brood in the center of the chamber. No harm would have came from this had the weather continued mild and admitted of frequent flights by the bees. But the most extremely cold weather came to stay all winter, almost without intermission, thus confining the bees to the cluster, generally, on this unsealed honey. The perspiration of the cluster, uniting with the unripened honey, became slowly, but surely, the deadly poison which they were compelled to accept as food, the result being many dead colonies the last of January, many more the last of February, still more the last of March and many more past recovery, dwindled and finally died until the 1st of May, even when given the best of food. There seemed to be comparatively few clear cases of actual starvation, but, on the contrary, almost all contained an abundance of good, sealed honey on sides and top of cluster. In many instances not one living colony could be found in what was a prosperous apiary. Not only was such the case in Indiana, but it seemed to extend throughout the entire great honey belt of the United States, including Pennsylvania, Ohio, Indiana, Illinois and Iowa, and it was estimated that the total loss was not less than 60 per cent. Thus it is clearly proven to my mind that no amount of conjuring or packing will ever solve the winter problem, and that only pure, sealed, well-ripened honey can be depended on as food in such rigorous winters as the past to bring the bees through in safety.

But the great calamity of the winter of 1892 is now past and is succeeded by the beautiful spring of 1893, and many true bee-keepers who knew no such thing as discouragement with their favorites, were now thoroughly aroused to the situation, and nothing was left undone that would assist in getting the bees in the best possible condition, while others, totally discouraged, sold their few remaining colonies and entire outfit for a mere trifle, declaring there was no money in bees. The former continued with redoubled energy to get all the bees possible in condition for the expected harvest. Beautiful June came, and with it countless legions of flowers, gushing over with the finest quality of nectar. No honey due this time! In July every colony that was in prime condition at the beginning of the harvest and had been properly cared for during the great flow now declared a dividend of $40 per colony, being a net surplus of 200 pounds each, or 800 per cent. in two months, allowing the purchase price to be $5 each on the 1st of May, and honey at 20 cents a pound.

Now, friends, if there is a better paying industry, or corporation of any kind, I have not yet discovered it. And when we consider the broad and wonderful fertile fields of Indiana, the scarcity of bees and intelligent bee-keepers, and that not to exceed one spoonful of honey is saved from each bucketful wasted, is it not high time that the friends of this down-trodden industry arouse themselves in earnest and search for. and destroy the hindering cause. Not a town or city of Indiana to-day that is not supplied almost wholly by honey produced in Ohio, Michigan, Illinois or Kentucky, and is retailed to our innocent, uneducated people at 20 and 25 cents per pound, while they dream and delude themselves that Indiana is not a honey producing State, and continue to raise wheat at 50 cents; corn, 30 cents; beef, 2 to 3 cents; sheep, $1.25 per head; wool, 12 cents; chickens, 5 cents; horses from $1 to $25 per head. Of course, most of the farms are mortgaged and worn out, as well as the people who run them. They conclude to attend the county institute. They go usually to find the institute wholly in the hands of the now over-bloated corporations and leading politicians of our State, who are, perhaps, more interested in booming their fine horses and cattle and setting up the pins for the next election than of teaching the true economics of the farm. The farmer listens, and it is the same old story that he has heard for years: Raise faster horses, larger horses, more general purpose horses, larger cattle, better dairy cattle; build silos; protect the stock better; raise more fruit, corn, wheat and potatoes; rise earlier in the morning; plow deeper; plow shallower, and be sure to rotate the crops regular; raise more and better sheep, and be sure and have the best of implements and keep them well housed when not in use; have a good creamery in every neighborhood; raise the finest improved Poland-China hogs.

After which comes a resolution:

Resolved, That a vote of thanks be extended to the good people of this place for the benevolent treatment extended to the Institute; and whereas it is the sense of the Institute that much good is resulting from the said work, the Legislature is hereby requested to appropriate at least $3,000 more at its coming session to continue the good work.

All in favor of the motion, say aye. Carried. Adjourned *sine die*.

Now has any one ever heard of an enthusiastic, competent bee-keeper being admitted to this aristocratic circle of State paid teachers of Indiana to labor for an industry, or has it ever received one cent in cash or benefits from State appropriations? We think not. For example, at our last meeting, we were asked to unite with other industrial associations in asking an appropriation to defray expenses of an exhibit at the World's Fair. $3,000 was received for the benefit of the live stock of Indiana, which the syndicate proceeded to divide up as follows: Horses 30 per cent., $900; cattle, 30 per cent., $900; swine, 15 per cent., $450; poultry, 10 per cent., $300; bee-keepers, nothing. Total, $2,550. Balance remaining in syndicate, $450. We were informed that owing to the limited appropriations, they could not allow us anything except space (which fortunately was not theirs to give), but that a kindly disposed gentleman had finally consented to look after our exhibits, and that we were expected to donate the honey for State pride; also prepay all freight charges. This utterly astonished our bee-keepers, who saw at once the utter impossibility of making a creditable exhibit under the conditions. So the honey was not donated and the project wisely abandoned by our bee-keepers; yet the Commission, not to be outdone, proceeded to purchase honey and make the intended exhibit on its own hook. This proved to be an elephant on their hands of large proportions, and ended with no credit to either our State or bee-keepers.

Our State Fair premium list is also cut down to a beggarly pittance in order to swell the enormous premiums of the speed ring of the many $1,000 races, which is just so much wasted to the industrial classes, and benefits no one save the gambler and fast horse syndicate, and compares very favorably to the annual Spanish bull fights, yet is a thousand times more expensive to the State. How does this compare: Premiums for race horses in the arena at Indiana State Fair, 1893, $9,200; premiums for the honey industry of Indiana, $137. Total for all horses at Indiana State Fair, 1893, $13,270. Thus it is seen that our otherwise prosperous and honorable industry, when the veil is removed, is nothing more than one of the tentacles of a giant octopus as now used, and is withering all our future prospects. But you humbly ask, What is the remedy? We answer, Vote for no more appropriations from our State to be unjustly snatched and squandered by clicks, rings or syndicates. Flood our Legislature with good healthy remonstrances until such appropriations are honestly applied for the benefit of all industrial pursuits, and as our sister States, Michigan, Ohio, Illinois, and many others, we must demand teachers at the county institutes and professors at our agricultural colleges, who are able and competent to teach the science of agriculture as every other industry is now taught. Herewith is a sample of Indiana institutes as now conducted throughout our State. Please note the benefits for the agricultural industry. I can view the course of those industrial educators only as a disgrace to the fair name of Indiana and a shame so long as the most industrious living creature of our earth is thrust aside and ignored, and not held up as the true model of industry. I would suggest that this association at once appoint such teachers as are known to be able and competent, one to act in connection with the State agricultural college, and at least one at each of the remaining Farmers' Institutes, and be paid same as the other teachers out of our State appropriation, that our industry may be again brought in line with other industrial pursuits, and as much dissatisfaction has been expressed with our State Fair premium list, as revised last year, I would advise that the association again revise said list in the honey department, so as to be most satisfactory to all our bee-keepers, and produce and insure a larger exhibit and arouse the enthusiasm of every bee-keeper of our State. Also, our judges should be again selected and properly notified at this meeting, that our

State exhibits may not again be subjected to a novice judge, and that true harmony may predominate in our association as well as in the hive. In conclusion I humbly thank my friends for the high honor you have conferred on me as your President for the past two years, and I do now think that I have been sufficiently honored at your hands, and will ask another of our many worthy, faithful members to receive this high honor as standard bearer. I have tried to do my whole duty without fear or favor, as I saw it, and no doubt have committed many errors, but have given honest service to the very best of my ability, and I shall always be an enthusiast, so long as my life remains, for the full protection of our best friends and greatest patrons of industry, the wonderful little honey bee.

President. Now, gentlemen, are there any remarks upon this paper?

DISCUSSION.

Mr. J. G. Kingsbury. There is one subject suggested to which I would like to call your attention. I am not a bee-keeper myself, but I am very much interested in the subject. Neither am I a member of this association, but I rise to ask that a certain topic of your paper be discussed to some extent, if you feel so disposed. It is this: In reference to having a professor—I suppose you might so call him—on apiaculture appointed in Purdue University. I believe that was the idea you expressed, Mr. President. Now, what I want to know is whether any such professor has been appointed in any of the colleges of Indiana. Michigan has one, as has also Illinois. I want to say here, also, in reference to our paper, as connected with the bee interests, you may have noticed, many of you, that we have endeavored to get some information and to give some space to the bee industry, but that occasionally we have not had much to say about it. I want to explain the reason why. It is not lack of interest in the subject, but is wholly due to lack of information. The fact is, I don't know very much about bees myself, personally, and I do not care to; I have not been very well treated by them, and they have not in any measure repaid me for my trouble; but still I am convinced of and recognize the fact that it is an industry that should be given much attention. I want you to understand that we are willing and ready to put such matter on the subject in our paper as any of you feel disposed to send us.

Edward S. Pope, 235 Blackford Street. Mr. President, in your report there you said something about an appropriation of $3,000. Can you give us any further light about that?

President. No, sir, I can not. I just received a letter from the Hon. Sid Conger, making the statement that there was $3,000 appropriated by the State for the purpose of aiding the exhibits at the World's Fair.

Geo. C. Thompson, Southport. I would like to ask if the officers of this association made any effort to get our appropriation for the bee-keepers of the State?

The President. Yes, sir; there was an effort made at our last meeting. A committee was appointed to wait on the commission, and also to wait on the Legislature; but I think they did not go to the Legislature, but to the commission with the request that they would grant us an appropriation. There was also a committee appointed to meet the Governor. These committees were not successful, and we were refused—positively refused any assistance. But of course this is now in the past, and can not be helped. The matter of which Mr. Kingsbury has spoken, I think, is more important, that of having some of the professors in our agricultural colleges take up the subject of apiaculture. I think we should have something done in this line, and have no doubt that the Purdue University would be glad to introduce something of the kind there. From what I know of the institution, they are always willing to introduce any branch that would benefit the industries of the State, and if it is desirable, we might make some move on this subject in that direction. Now, are there any further remarks on this subject?

Mr. Pope. I think it is eminently proper that this association should make such a request, and have a branch of apiaculture established in our colleges.

Mr. Scott. I have been told that in view of the importance of this branch, the colleges are going to assist this industry and encourage it, and my friend here, Mr. Thompson, ought to make some recommendation to Purdue University to take it up in connection with some other branch and try to encourage this industry. As much attention is not paid to the bees as the industry warrants. In view of the fact that Michigan and some of the other States have such a branch in their colleges, I think it is well that it should be taught in our own colleges.

Mr. Kingsbury. I would suggest this, gentlemen, that it would be wise to send with the request some statement of the progress and condition of the industry, giving them an idea of the number of persons engaged in the pursuit and the number of pounds of honey produced by each person engaged in the business; let them know that it is a business much more important than the encouragement it receives would show, and that it has not had the encouragement that other farming industries have had. Then, perhaps, make some statement in regard to what the bee industries of other States have been doing, showing that with the encouragement that they have received, they have done more than in Indiana. While here we have the best of facilities, especially in the transportation facilities we are ahead of any State in the Union. I think such a statement as this would produce the desired effect. The Purdue people have certainly been trying, as far as they have the ability and information, to make all the progress possible in agricultural matters, and they will certainly try to do this. I think they will be very glad to take hold of it and do everything you can reasonably ask of them.

The President. Are there any further remarks now? I want you all to feel perfectly at home now; speak your minds right out. We are all liable to get things wrong sometimes, but I love good honest mistakes. I love to see them come from an honest heart, and then they are all right. Speak right out, gentlemen.

Dr. J. M. Hicks, City. Mr. President, I was once a citizen of Tippecanoe County for twenty years. Before I left that county I went to the President of the Purdue University, and I tried two or three times to impress upon him the importance of having a professor there, and the importance of teaching this branch of apiaculture. I had quite a conversation with the President, and also with the Manager of the Apiacultural Department, but I could not get any favorable reply, and after making two or three personal efforts, I finally gave the matter up. Then I called the attention of most of the bee-keepers of Tippecanoe County to the matter, for I was considerably interested, and we then asked the privilege of holding our meetings in the college building, which request was granted. We had there several meetings of the bee-keepers, and I tried to impress upon the minds of the members of our organization the importance of having a department of apiaculture established, and where the students could be taught that branch; but they did nothing definite in the matter, and that, like some other matters through life, has taken the starch out of me as a bee-keeper, and I sold out in Tippecanoe County and came to Indianapolis, but even now I feel as much interested in the science of apiaculture as I ever did, but I am not as stout as I once was, and I can not undertake the labor that is necessary for a bee-keeper as I once did. But I want to say that I am willing to contribute my share towards establishing a chair in one of our colleges, and I think it is a good idea. I should like to hear the views of others on this subject.

Mr. Scott. I think something should be done in that direction, an effort made to establish a chair in our State institutes. I have had considerable experience in bee-keeping, as I have been in the business all my life, and have produced a great deal of honey, and I feel greatly interested in the success of apiaculture. I think we should make arrangements in this matter. Honey is a luxury, and we ought to be able to be prepared to have it collected and used for the benefit of mankind; hundreds of pounds go to waste every year. I was talking with a gentleman from Scotland quite recently, and he told me of their method of bee-keeping in that country; and I think that while we have no professorship on the subject of apiaculture in any of our colleges, we are far in advance certainly of the old country in our methods. We should do all we can to promote this industry, make advancement, and be prepared to save this product, which is going to waste continually. I say again that I think we should make an effort to have a professorship established in Purdue University in the branch of apiaculture.

The President. We would like to hear from Brother Catterson on this subject. We don't want you to be backward this morning, and you know you are one of our oldest bee-keepers.

J. T. Catterson, Brownsburg. As I have just come in, I have not heard very much of the question, and for that reason I don't believe I care to say anything just now.

The President. I don't think that Brother Catterson quite understands the questions discussed. He was not here when the paper was read. The suggestion was that as our sister States, Illinois, Michigan and Ohio, are now paying nice little sums of money in the interest of bee-keeping, and Illinois especially keeps a very fine apiaculture under the direction of a professor of apiaculture. Michigan also does the same, and we want to advance also right along with the procession; we want to be in the swim. I know there is no more interesting a subject than that of apiaculture, and perhaps one so little understood generally. Now, I think this is a subject that demands serious attention. I have bees and I make money on them; my neighbors have bees and th y make money with them, and it is all clear money, too. And then, again, our bees are a benefit to each other in fertilizing the fruit, as well as many other things I could say of them. We must take a more serious interest in this subject, and it will not be long before our industry will bloom like that of Michigan, Illinois and Ohio. They all have teachers in their institutes. They have experimental farms and send their honey to the best markets in the world. We can raise as much honey here as anywhere else. We must do something to bring our industry upon an equality of other States.

Mr. Thompson. Mr. President, I think it is time now, before we leave this question, to make a motion that the officers of this association for the ensuing year make application to Purdue University for the establishment of the department of apiaculture there.

Motion seconded and carried.

The President. If there is now no further discussion upon this question, we will proceed to the next paper, which is "Profits of Bee-Keeping Combined with Other Vocations," by Mr. J. A. C. Dobson, of Brownsburg.

Mr. Dobson. In answering the call of the committee, I have tried to prepare a paper on the subject assigned me, but I would say in the beginning that some one else is responsible for this paper and not I myself. It has been a rule all my life that when I am connected with any particular matter, to respond to it, and when I am asked to do something, I will do it. I am now to discuss the subject, "Profits of Bee Keeping Combined with Other Vocations," at the request of the committee of this association.

PROFITS OF BEE-KEEPING COMBINED WITH OTHER VOCATIONS.

A well-to-do farmer remarked to me recently that he had kept several colonies of bees for many years, and that his bank account had never been sensibly effected by the business. But he admitted that his table had always been furnished with an ample supply of the greatest luxury and best food the world can produce, and that his grocery bill had been materially lessened, and his pocket money somewhat increased by it.

I know him to be a successful farmer and an intelligent bee-keeper, for I had myself gained from him much valuable information about the business, and his own admissions show that, though he was a large and successful farmer, he had made bee-keeping sufficiently successful, from a financial point of view, to fully justify him in engaging in it as a side line to his larger business.

In our own State, which is perhaps one of the least profitable of all the States for bee-keeping, but I am not certain of that, however, there is an annual waste of untold tons of this most precious of all sweets, for the want of bees to gather it in its season, and it seems to me that there is not only an economic, but a pressing moral duty resting upon our people to provide for the harvest of this, one of God's most gracious gifts to man.

Who should engage in the business? The Savior's answer to the question, Who is my neighbor? fully answers this question.

The bee-keeper's business is like the "kingdom of heaven," in this, that "many are called but few are chosen," and the few are chosen for the same reason, viz.: because they answer the call and use the provided "means of grace."

In this, as in all things, the universal law of the "survival of the fittest" will prevail. A bit of personal history here would be pertinent to my subject and perhaps useful to those who have never kept bees by way of encouraging them to try it.

Often in years gone by Captain Catterson, who is an old and honored member of this association, and who, by the way, is a very successful farmer as well as bee-keeper, urged me to try bee-keeping, but I refused, for the reason that bees and myself have always been personally *non grata* to each other.

I was very much afraid of them, but this feeling did not seem to be by any means mutual—they were not a bit afraid of me.

But about eight years ago bee-keeping, like greatness upon some men, was thrust upon me by my friend C. placing in my yard a colony of bees one day, when I was away from home. For the donor's sake I respected the bees at a distance for a long time. For two years I got no increase and not a pound of surplus honey. Each fall I fed them a gallon of syrup and wrapped an old carpet around them for winter protection.

On the third spring I had a strong colony, which early showed great activity and swarmed in May. I got a neighbor to help me hive them and to show me how to handle them. I became interested, bought me a veil and smoker, borrowed Prof. Cook's Manual and subscribed for the American Bee Journal.

Soon there was a truce between me and the bees which grew into mutual friendship, and finally ripened into love which has grown stronger year by year.

At the end of the third year I had four good colonies from the one in the spring, and had taken that year over one hundred pounds comb honey. Not desiring many colonies, I have since then worked against increasing, but I have never lost a colony from any cause, and now have eighteen strong colonies in winter quarters, and any other man can go and do likewise.

Last year we ate and sold over one hundred dollars worth of comb honey.

During the time I have been trying to keep bees, except the last few months, I have had important business matters on my hands, and a part of the time I was in very poor health, and I do not believe my business was ever neglected on account of my bees.

I have made this personal reference to show that bees can be profitably kept in connection with other avocations.

Since I reached my majority I have engaged in several quite different vocations for a living, namely, teaching, farming, merchandising and that of public official, and there has been no time during my business career that I could not have easily given sufficient time to bee-keeping to have profitably cared for a few colonies, and it is one of the regrets of my life that I did not years ago begin to keep bees, and then I should now be a *real* bee-keeper.

In this country the profits alone are not sufficient to make many real bee-keepers; the discouragements are too great and come too often for that. To become a successful, persevering, stick-to-it bee-keeper, either in a large or a small way, one must love the bees, admire their wonderful ways, delight to study their instincts and to assist them in their busy life. Such a one, be he minister, lawyer, doctor, merchant, teacher, farmer, gardener or mechanic, will have a success that will fully justify him in engaging in bee-keeping as a side line of business or as a diversion, both in the profits and the pleasure (which, by the way, is the greatest of all profits) which the business will yield him.

Most people have the impression that I used to have, that the bees have a special spite at them, and that if they should attempt to keep bees the very first hive they should try to handle they would be stung within an inch of their lives, if not put entirely to sleep. If you are a philanthropist, and most bee-keepers are, it is your desire that others may be partakers of the good things of life as well as yourself. You should, therefore, upon every opportune occasion, endeavor to do a little missionary work in the interest of the business. If the production of honey could be increased until it becomes a general article of food the increased demand and ready sale for it would more than compensate for a little lower prices, but I believe that such a condition would increase rather than reduce the price of first-class honey, and our country would be greatly blessed. Show your friends how easily and safely bees may be handled, and what delightful work it is, and their prejudiced minds will undergo a great change toward our busy little friends.

The most inspiring sight in the world to me is to sit among the bees on a favorable morning during a good honey flow and see them hustling for business.

Don't tell the "sluggard" to go to the "ant." Send him to the bee for "wisdom."

The devout philosopher who loves to look through nature up to nature's God, will find in the bee his most powerful telescope.

Bee-keeping will honor any profession, elevate and refine any condition, and make more happy any life. No avocation in life is better fitted to be joined to bee-keeping than that of the farmer. With him it is not a side line, but as much a part of his business as raising cattle or growing potatoes, and strange to say, it is perhaps easier to get one in any other vocation to start, and start right, in bee-keeping than the farmer.

There is every inducement to the farmer to engage in the production of honey. He is isolated, so that his bees can not annoy others. He is near the pasture. He can insure a fair crop of honey every year and profitably vary his crops by growing such honey bearers as alsike, alfalfa, buckwheat, etc., and drive noxious weeds from waste places by sowing sweet clover and Chapman's plant, and since the loom and spinning wheel has fallen into such "innocuous desuetude," his wife and daughters, especially the latter, can make that loss good by attending to the bees, while he is in the fields at work. When farmers learn and act upon this fact the land will flow with God's two best gifts to man, the twin blessings—milk and honey.

I have discussed but one side of my subject, for I have considered that bee-keepers do not need to be told that they can profitably join other lines of business on to bee-keeping, and I have therefore confined my efforts to the task of showing those engaged in other vocations that very many of them could profitably join bee-keeping to the business in which they are already engaged. But to every man who may think of trying to keep bees, I would say, as I did to a neighbor who came to me to buy a colony. He said he wanted to try his luck with bees. I replied that I could spare a colony, but I did not want to sell them to him, for I was sure he would have no luck with them; that successful bee-keeping was no more a matter of luck than successful gardening or farming; that careful, intelligent management was the price of honey, as well as of bread and butter. "He went away sorrowful," for he trusted in luck. I would say to all who would engage in bee-keeping that it is not so much a question of the amount or extent of time necessary to successfully manage a few colonies of bees as it is a question of knowing what to do and how to do it, and when to do it, and then the doing of it. A stich in time saves nine the world over.

I would not discourage men from engaging in the business by holding up this high standard of management as a prerequisite to success, but I would have them understand once for all that unless they start right, with a determination to succeed by merit and not by luck, all the time and money they put into the business will be lost, and a large stock of disgust will be all that remains to them of their enterprise.

Mr. Pope. This is a splendid paper, and we will want to discuss it further, but as it is now half past twelve, I move we adjourn until half past one o'clock P. M.

Motion carried. Adjournment.

Meeting again called to order at 2 P. M., present as before, President Russell in the chair.

The President. Ladies and gentlemen, although I might say lady and gentlemen, as we have a very limited number of ladies here, we will now listen to a paper by Dr. Hicks on the subject, "Honey as a Medicine."

HONEY AS A MEDICINE.

J. M. HICKS, M. D., INDIANAPOLIS, IND.

Mr. President, Ladies and Gentlemen of the Indiana Bee Keepers' Association:

Doubtless you have come here, as well as your humble servant, feeling, as we do, a personal interest in a common cause, viz: the greatest good to the greatest number. Hence, it has fallen to my lot, as a member of this association, to contribute my mite toward carrying out the work laid out in the programme of this the annual meeting of Indiana's bee-keepers; yet I confess that, in my opinion, the subject allotted to me could have been placed in more able hands. But with your kind indulgence, I shall try and do the best I can in stating to you that it is a known fact to many of us that pure honey used in many ways as a medicine has but few, if any, equals in therapeutics. Honey has been used for many hundreds and thousands of years as a medicine in the various diseases of the human family, such, for instance, as a severe cold, croup in children, coughs and all bronchial affections. We find honey to be one of the great medicinal factors not only in the above enumerated diseases, but has great healing properties in all pulmonary affections. We read in holy writ, as well as ancient history, that honey has been prominently used as a medicine by the ancients in many of their ills. It is said that the Mahomet bible taught the Egyptians that honey was a medicine for man; also that Mahomet in his Koran prescribes honey as a medicine. One of the chapters of that work is entitled "The Bee." (See British Bees, by Shuckard, pages 90 and 91.) It is not only a good medicine for many distempers that the human family is heir to, but we also find it a healthful as well as cheap food for children—especially that which the bees gather from the various mints, such as the hoarhound, catnip, peppermint, horse-mint, and I would not forget to mention especially the honey that is procured from the various clovers, such as the Alsike, red and white clovers, These furnish the best of honey for food and all medicinal purposes. Let me here state as a matter of fact, that I have had several occasions quite recently to test the merits of honey in severe cases of colds, and have as yet not been disappointed, but all my patients have been greatly benefited in a very short time, and the relief was permanent in each case. I am sure that if we can at all times procure a pure article of honey from the sources above enumerated, we can as surely depend on it as a sure remedy in colds and bad coughs; and especially do I know that honey, if properly and judiciously used as a medicine in pulmonary or lung trouble, will be of great and lasting benefit to the patient. But, like many other therapeutic agents, it needs other combinations, in order to make it more efficient in meeting the special cases with which we have to deal.

I am not inclined to extol any article for more than it is truly worth, but I do think and believe that to a large class of the American people, the true value of honey as a medicine in many of our ills is not known as well as it should be with the masses. Trusting I have, in some degree at least, met your expectation in the task allotted to me, in which I am very sure this subject could have been placed in more able hands, and you all would doubtless have been more highly interested with some other person to perform the task, but before I close, let me impress it upon the minds of this organization of bee-keepers that it is the duty of each and every member of this and other State organizations to see well to it that all honey offered in the various markets should be a pure article, and not adulterated, as is too often the case. Then and not until this can be done, can we depend on it as a true medicine in many of the ills we have to contend with.

The President. Are there now any remarks upon this paper? If so, we should be glad to hear them. Well, Dr. Hicks, I will ask you to state, whether in your opinion, the dark honey or the light honey, is the best for medicinal purposes?

DISCUSSION.

Dr. Hicks. Well, that depends very much upon the kind of honey—that is, from what plant it is gathered. There is what we call the straw-colored honey which is among the best for medicinal purposes; I would not say *the* best, but equal to any of the light colored grades of honey.

The President. You may state about the poplar honey, Dr. Hicks?

Dr. Hicks. Well, poplar honey is very good also. The Tulip poplar, as it is usually called; in earlier days we knew it by no other name. There are two kinds—the white poplar and the yellow.

The President. The poplar honey is rather inclined to have a bitter taste; something a little after the flavor of quinine, has it not?

Mr. Pope. Something similar in character to the golden-rod, as some people call it?

Dr. Hicks. Golden-rod is a very good plant, and is used largely in preparing medicines in the different laboratories throughout the country.

The President. We will now proceed to the next paper by Mr. George Wilson, of Tollgate, Ind., "Do We Wish to Prevent Swarming?"

DO WE WISH TO PREVENT SWARMING?

BY GEORGE P. WILSON.

Mr. President, Ladies and Gentlemen:

If the executive committee had tried until now to find the hardest subject on which for me to write a paper, I don't think they would have succeeded any better. It is a subject that I have never given a great deal of thought, and, therefore, my paper will necessarily be short.

Some think that to prevent swarming insures a greater harvest of honey. While others contend that nature has so ordered that the bees should swarm, and to prevent swarming is to discourage the natural propensity of the bee, and thus cause them to be idle, and consequently make our honey crop shorter than it otherwise would be.

I am somewhat inclined to take—in part at least—the latter view of the subject, but to settle this question will require men of greater experience in the apiacultural industry than I have had.

Whenever our bees are in good condition for the honey harvest, they are in first-class condition for swarming. If they are strong, that is, the hive full of bees and brood, and the honey flow comes on, their natural inclination is to swarm, and if they once get the swarming fever it is hard to prevent them, especially when we are working for comb honey. And I am not sure it is best to prevent swarming for extracted honey. The theory of some that the right thing to do is to remove the queen, I think is all wrong, for that is working square against nature, and we want rather to assist nature. If we do not wish increase we can prevent it and yet let nature have its course. Let the bees swarm if they want to. Hive your swarm, remove the frames of brood from the old hive, place them in upper story of the swarm hive, with honey, brood and queen cells removed, and the bees will work all the harder to fill the hive, and as the brood hatches they will fill the combs for extracting. Or put your frames of brood over some weak colony and thus quickly build it up.

I have had colonies to lie idle nearly through the honey season because they wanted to swarm, but I kept the queen cells cut out and they would build others, and repeat it, and finally swarm without building any cells, and leave both old and new without sufficient stores to rear brood and become strong for the winter.

On the other hand I have had swarms to fill their hive in six or eight days, without foundation, and perhaps the parent colony gave me a good surplus before the season closed.

Again, I have never got so fine large queens from nucleus or from colonies with old queen removed as I have from nature's way, *i. e.*, swarming. The cells built under the influence of swarming have been generally much larger, and the queens larger, stronger, and I believe more prolific from natural than from unnatural causes. I have seen many cells not larger than drone cells, built in nucleus or colonies with queen removed, and queens from such cells, when grown, not much larger than a good working bee.

Therefore, to sum up the whole matter, believing as I do that we get as much or more honey, that natural is better than artificial swarming for increase, that we get better queens, I think on the whole it is best to let the bees swarm if they once get the fever. But the question is open for discussion by perhaps more experienced apiarists. I close by asking the question: Do we wish to prevent swarming?

President. Are there any remarks upon this paper, gentlemen? If there are hurry them right up.

DISCUSSION.

Mr. Thompson. My difficulty has been, not in trying to prevent them from swarming, but to get a sufficient amount of increase, and I doubt if it is wise to attempt to prevent swarming entirely. My method is somewhat different from Brother Wilson's. I aim to get most of the honey from the swarm, and not depending upon the old colonies for very much of the honey. I try to get all the workers from the old colonies into the new one, and I depend altogether upon them for the increase in honey. My object has not been to prevent swarming but to increase.

Mr. Wilson. Mr. Thompson, will you please state what amount of space you give the brood chambers?

Mr. Thompson. That depends altogether upon the amount of the swarm. My purpose is to force them from the lower story into the upper story, and compel them to carry their honey up into the upper stories.

Mr. Hicks. Brother Thompson speaks of his old swarm and his new swarms. I do not wish to take up much time, but I want to say this, that this matter of new swarming is not always to the satisfaction of the new beginners, and I suppose there are a few here who are beginners in the bee business. I presume Brother Thompson means the hive where the swarm came out of, when he speaks of his old swarm; that is, the hive remaining that the swarm came out of. This is clearly a mistake. It is the old swarm that comes out.

Peter Rabb, Brightwood. When I wish to prevent swarming I will take two combs of brood from each of two or three colonies and place them together in an empty hive. This prevents the swarming fever, and provides a rational increase in the apiary.

President. Do I understand that you are now dividing, Mr. Rabb?

Mr. Rabb. Yes, I am dividing now for artificial swarming.

Robert Scott, of Moorefield. I have had from fifty to one hundred and twenty-five swarms for the last twenty or twenty-five years. Our object in keeping bees is to make money out of them as well as in addition to the pleasure and satisfaction in the work. Our object has been to prevent them from swarming, so far as it is possible, and I think if we give them the proper attention, as a general thing, we can prevent it almost entirely; but I can tell you that to do it requires very strict attention at the right time. We prevent swarming by giving the bees the proper amount of storage room. Some ten or fifteen years ago, if you recollect, we used glass boxes, and by this means we succeeded better, I think, in preventing swarming than we do by the later means. There was an old gentlemen near our town keeping bees, and his plan was that when they came to a flow of honey—and I will say right here that you have got to judge when to do these things by the flow of honey—when a sufficient flow of honey came he started in so many boxes, and these boxes were scattered; for instance, they commenced by putting them on top. When they were two-thirds full empty boxes were put on the sides and on the bottom, and partially filled boxes were put on top of them. The supposition was that with the empty boxes of course the work of the bees would be scattered about so that they had plenty of room. The best thing to prevent swarming is to have the workers scattered.

President. Still the question is: Do we wish to prevent it?

Mr. Scott. Well, that would depend upon circumstances. If you have a sufficient number of hives—as many as you care to have—then you certainly do wish to prevent swarming. Make the most out of the colonies by getting a large amount of honey stored. I will say right here that it is impossible to prevent swarming in the summer season, but if they have the proper attention and care at the right time, and proper room is given—not meaning by that to give them too much room, for if you do it will discourage them—swarming can be prevented largely, and much more money can be made out of a hive of bees by preventing swarming. That, gentlemen, has been my experience during my time.

Mr. Catterson. For my part, I wish to prevent swarming. My method is easy and plain. When I have a swarm I just simply exchange the hive and let the swarm and all the bees that were in the old one come back. I find that for the first three or four days they will not work together, but from that time on I was not bothered with any more swarming; but before that, in order to prevent swarming, I used surplus boxes; when they filled one up, I raised that up and put another right under it, and when they had filled that I put another right under that, and so on, and in this way I prevented a great many swarms, I think. I don't know it to be so, but I think so.

John Manford, Noblesville. My brothers, my theory is to prevent swarming. That is my theory from the beginning to the end. I work for the money there is in bee-keeping, or for the honey. The more honey I get the more money I get, and where the most money is, there is where we work the most. My theory is never to allow them to swarm, and I have not had a swarm to bother me for five years.

President. Do you work for extracted honey, or for comb honey?

Mr. Manford. I work for both—for the comb and for the extracted. I can not work every colony of bees for the comb honey, but I have been experimenting in this bee business for nine years, and have done nothing else during that time. That is my occupation, and I try to get something out of it. It is just as easy to keep them from swarming as it is to keep them at all, if you go about it in the right way. I visit my hives about once in every twelve days, and I look over the honey, and after I get through that I take and divide my hives up. I separate them and make two different ones. This is one way I get my increase, and I have no trouble whatever with swarming, and I think I get fully as much honey as any one, too.

President. You say you separate your bees once in every twelve days?

Mr. Manford. No, sir; once a year.

Mr. Scott. Is that after the honey harvest is over, Mr. Manford?

Mr. Manford. Yes, sir. I go to the hives, change the frames, take out about equal, and put a queen in the second hive, and then let them alone for the season. This is the way I get the increase, and if I did not get from one hundred and fifty to two hundred pounds of honey I would think I was not a bee keeper at all.

Mr. Catterson. I don't know what would become of my colonies if I didn't examine them oftener than once in twelve days, for I think some of the colonies would swarm three or four times, one after the other. I am opposed to dividing colonies, for after the honey flow is over I have no swarms. I do not allow them to swarm. Now, then, it takes about twenty-one days before the queen can raise any bees; that is fully forty days gone, and then the honey flow is over. I believe that any man who will divide his colonies, unless they have a queen to put with one of the colonies, it is all out of place to divide them at all.

Mr. Pope. I bought a colony of Italian bees from N. C. Mitchell, and I took them with me to Illinois. I had bought one colony of bees out there, and I divided them and made sixteen colonies out of them, but I found that they all perished in winter except a very few.

The President. As for myself, I like Brother Catterson's method, which I believe is pretty near the same as Brother Thompson's—that of tiering up the honey boxes. The idea is to first get the bees in the first section boxes on the top, and after that box is full, either with bees or with honey, it doesn't make any difference which, raise that section up and put an empty box under; then your honey is above the bees, where it should be. They continue to work right down there, which is the natural way. As soon as the boxes are all full, raise them up and place under them other boxes. This is the most successful preventative of swarming that I have ever practiced.

Dr. E. H. Collins, Carmel. Isn't there some danger of getting more section boxes started than will ever be finished?

The President. I think it is the disposition of the bees never to start any more work than they can accomplish. Of course, if there should be an unexpected stop in the honey flow they would not finish all their work.

Mr. Scott. In the old-fashioned hive we used to make space at the side. I think the bees down our way would commence with the lower sections before they commenced at the top, and we can hardly find sections that are not entirely complete, if the honey flow has been sufficient to justify them. By this method of side storing, preventing swarming was a success when it was done in time. The main thing is to get them to work in different parts of the hives, and by that method you can prevent swarming the best, I think. This plan of our Chairman, that of tiering up, would be very apt to discourage the bees, by putting too many empty sections underneath.

The President. Usually the sections are made with glass on the outside, and one can readily see by looking in through the glass when the hive is full. This idea is simply to give the bees plenty of room in which to work, and in that way to prevent swarming.

Mr. Scott. Yes, this idea of giving them plenty of room is a good one, but we must be careful and not over-do it, or we will discourage the workers, and I think this kind of work can only be done by persons having more or less experience. Sometimes a swarm issues from a hive when there is but little surplus honey—that is, the bees will swarm before the sections are full. In that case, I change the boxes and set them on a new hive. I just take the boxes from the old hive and set them on the new hive. Sometimes the bees will swarm because we have neglected to put on surplus boxes in time.

The President. I think the point is very well taken. Sometimes before the bees get acquainted, and before they find out there is such a thing as section boxes, they make preparations to swarm, and I think they should be induced, as early as possible, to go into these sections. As soon as they do this, you can prevent swarming by simply giving them room. They will continue to work along from the top to the bottom, and will not make any effort to swarm.

Mr. Collins. Just as to when to put on the sections, there seems to be a difference of opinion. Isn't there danger of putting the sections on too soon, say two or three weeks before they are ready to swarm?

The President. I put on the surplus before I see indications of swarming; just as soon as I notice that the hive is very strong with bees. If I find the hive is full of bees, then I know the honey flow is ready to begin from the white clover, then I put my section boxes on right away.

Mr. Collins. I will ask you if the bees don't go into sections more readily if you hold them off until they have room, than they do if you put sections on two or three weeks before?

The President. I think they will not go in at all until after they are pretty well filled below. At least that is my experience. It is a very difficult matter to deal with them when they are all filled below. They may be filled with brood almost before you are aware of it. The great trouble is that they fill those lower sections with brood when there is no honey coming in; then they prepare to swarm.

Mr. Scott. I think the best way to determine when to put on the boxes is to observe the brace combs between the frames and the honey-board; when these are whitened, the boxes should be in place. I think, also, to make a success of the business, one should look at their bees every three or four days. I don't see how the gentleman makes a success of it who has told that he looks at them every twelve days or so. When I gave proper attention to bees, I used to look at them every three or four days.

Mr. Rabb. I remember that some years ago I had a syrup barrel half full of extracted honey, and I remember that I extracted from the hives and the third day from that they were all full again. Now, what would they have done if I had only looked at the hives eight or twelve days after that? I would like to know what the bees would have done.

President. You don't think it ripened there?

Mr. Rabb. I think it ripened enough. I have some of it yet.

Mr. Manford. I don't know as I can explain, gentlemen, the question you ask, but I know that I have never learned anything except from experience. I have been handling bees for thirty-five or forty years, and for the past nine years I gave all my time to them. I didn't attend to anything else except the bee business.

President. And yet, Mr. Manford, do you think that once in twelve days is often enough to look at the bees during the honey flow?

Mr. Manford. Yes; I think every twelve days is often enough. Of course it depends some on what size your hives are; if they are small hives perhaps it might be well to visit them a little o'tener.

President. How many sections do you leave on for comb honey?

Mr. Manford. I have twenty four that I keep in all the time. If I make section honey I have twenty-four frames for the bees to work on.

President. Will that number last for twelve days during the honey flow?

Mr. Manford. Yes, sir. I use the Langstroth hive—the twelve-frame Langstroth hive; that's what I use.

Mr. Hicks. I understand that to be the brood chamber?

Mr. Manford. Yes; I use twelve frames in each box, and they are two or three stories high. I give the bees room in proportion to the number of bees I have, and then when the honey flow comes in there is no danger at all of swarming. I throw two or three hives together when I extract, and I will get 150 or 160 pounds every time I extract.

Mr. Hicks. In comb honey, how many frames do you use in the brood chamber?

Mr. Manford. Sixty-four sections, and two sets of frames in the brood chamber. As I said before, I use the Langstroth hive, which holds twelve frames in place of eight or nine.

Mr. Hicks. Then it takes sixty-four sections to cover them?

Mr. Manford. Yes, sir. I have secured comb honey and extracted both from one hive, both at one time. Last year I worked with a good many bees—about one hundred and fifty colonies, or more, probably—and I didn't have any swarming.

Mr. Pope. You say you have 150 colonies this year?

Mr. Manford. Yes.

The President. Are there any further remarks upon this subject? If not, we will pass to the next, as I think we have spent about all the time we can well spare. We will now pass on to the next paper, "Characteristics of Different Races," by J. F. Michael, German, Ohio.

Geo. P. Wilson, of Toll Gate. I have here a communication from Mr. Michael, stating that he could not possibly get up a paper in the time given him to do it. Give him a month, and he assures us that he will always be at our service.

The President. If that is the case, we will hear from Mr. Walter Pouder, of Indianapolis, on the subject of "Controlling the Mating of Queens."

Mr. Pouder. I have put off preparing a paper on this subject until the last hour. I think this is a new subject. I don't know whether any one else has talked upon it or not; if they have, I have not heard of it. It is one of the most important subjects that is before the bee keepers now, I believe, that of controlling the mating of queens. You know they have their own way. The queen will take her flight between 12 and 1 o'clock, almost invariably; I have watched them multitudes of times. Drones also fly at that time of the day. If we could by some method induce the drones to fly at some other hour, and at the same time induce the queen to fly at some other hour of the day, it seems to me that the problem would be solved. I believe that I can do that by going to the hive that has the queen in it at 8 or 9 o'clock in the morning and feed them syrup. Whenever you attempt to feed them they start an uproar and take flight; the queen also will come out and take flight, just as she would later in the day, if left alone. I have practiced the method, and so far as I know it has been a success; but having only Italians in the yard, I could not prove my work, but I have my faith pinned to the idea and believe I could control the mating of an Italian queen in an apiary of black bees. If any of the friends have gone over the same ground, I would like to know of it.

Dr. Hicks. This is a question which I have been studying for several years. I have tried his plan twenty years ago, and I must say that as far as the actual fact of controlling the mating of a queen to a certainty, I don't take much stock in that. As far as making bees come out by feeding them, that is all right. You can have your bees and drones come out at almost any time and swarm, by simply stimulating them with a little food. I have frequently tried it at different hours; at an early morning hour, then at noon, and then at three o'clock in the afternoon. If you will watch them closely, you will see that the queens will come out about half-past one, from that time on until three o'clock. It is my opinion that the controlling the mating of queens to a certainty is a very difficult question to settle.

Mr. Catterson. Did I understand Dr. Hicks to say that when a colony is queenless, that drones from various other hives may enter this hive?

Dr. Hicks. Yes, sir; that is so.

Mr. Pouder. Drones may enter any colony in the yard, but this does not figure in controlling the mating at all, as we know that they mate while on the wing, always. I have frequently watched virgin queens take their flight when four days old, and between twelve and one o'clock.

The President. Dr. Collins have you some idea on this subject.

Dr. Collins. No, I have never tried to control the mating of queens.

Mr. Scott. We raise our queens after the honey harvest is over, and although it is, of course, not a certain matter to control queens, I think it would be an improvement over the natural process.

The President. Wouldn't it be a better plan to leave a colony queenless for these late dones?

Mr. Scott. That would answer the purpose, yes. In a queenless colony, you can keep drones all along. After so long a time, a month or so, perhaps, they would leave.

Dr. Hicks. In this question of a queenless colony, as soon as the drones find out, or as soon as they come out in the afternoon to play, then they soon find out that there is no queen, and whenever there has been a colony rendered queenless for the purpose of holding drones, you are just as liable to get drones from an imperfect stock as you were to get pure ones. It would be a failure in that direction.

Mr. Scott. Supposing you hold the drones until they are all killed off by the natural process?

Dr. Hicks. You can not do that successfully. When I was in the bee business, I used to ship hundreds of queens all over the country everywhere. And when I wanted to make a certainty of controlling queens, I would stimulate them very early in the spring, say in February, getting them ready for swarming first, and then when my other colonies were strong enough, I would go to them and proceed to rear queens before inferior stocks had drones. This is the only way I could control them with any degree of certainty.

President. An idea that I had in this line was to take my young queens away out of the reach of other bees, together with the drones I wished to mate them to, but I found that this was a total failure.

Mr. Hicks. I am sure that queens will fly from three to five miles; of that fact I am satisfied.

Mr. Collins. When I was a young man I worked with a farmer whose wife kept bees, and not being accustomed to honey at home, except when we bought it, I liked honey very much. I used to eat it at the table in that family, and only measure the amount which I ate by the limit I thought good manners ought to go, and it seemed to me, in after life, that for my own table I might just as well have that luxury. I commenced to keep bees; but before I commenced to keep them my sugar bill was about seventy five dollars per year—all the way from sixty to seventy-five dollars per year. After I commenced to keep the bees and raised comb honey, extracted honey and raised sorghum, my sugar bill went down to about twenty dollars per year. The reason that I will talk on this subject which you have assigned me is that I believe in almost every family there would be some one who had a tact for keeping bees, if it were only shown. The little talk I shall give is on keeping bees with the greatest profit with the least effort and expense. The first thing should be to encourage those who have a tact, and perhaps do not know it, to try and see if they do not like to keep bees. Before I had bees at all, I used to have the opinion that if I were to lift out the combs all the bees would fly right in my face. Imagine my surprise when upon going to the hive and cautiously lifting the comb out every bee attended to his or her business. That moment I became master of the situation and was perfectly at home with the bees. A person to have honey enough for two or three families does not need to handle more than five or six, or, at the most, ten hives. They need not require the attention of that person so as to interfere with any ordinary business of life. We can make them a pastime, a pleasure, as well as profitable. In learning to manage bees with the least trouble you should first become thoroughly acquainted with them. I remember the first bees I had. I opened the hives many times a day—sometimes a dozen times—and would watch them emerging from the combs; watch the queen lay her eggs, and watch them coming in and out of the hives; consequently I became much interested in the bees and learned much about them. I will say this to beginners, that they must first become thoroughly acquainted with the habits and instincts of the bee, then you can control them at longer range. Since I have become accustomed to the bees, I can roam through the apiary and attend to the colonies, and in the majority of cases they always attend to their own business and I am never stung. Now you have become acquainted with the instincts of the bees. They are quite different from horses and cattle. They have to be controlled by their instinct entirely. We can drive the horses and lead the cows, but the bee is controlled only by his natural instinct. Now, after I am perfectly well acquainted with the bees, I have a few colonies in the summer and examine them carefully to see that they are all right. No one can handle bees with profit without some care. Go over your colonies in the spring and clean out the hives. You should also trim the cells down. They should be trimmed so that they will be no longer than the top bars are wide. See that the colony has a queen and a sufficiently large amount of brood for the queen. It is well to close your frames up to one-fourth, or three-eighths would be better, but not smaller than a quarter, and then cover your brood up. See that they have plenty of stores in the hives. Fill a comb with syrup and hang it up in the hive. Then cover them up well and let them alone. You should open your hives frequently and see that they are all strong and have sufficient stores. One of the most difficult things that I have had to learn to do just right was when to put the section boxes on. One gentleman said here to-day that if one waited too long the bees would get the swarming fever on account of being cramped for room. Another gentleman said that if one put them on too soon the cold weather would discourage the bees. The carpet covering them should be lifted, and what to do with them could then be determined. The bees will sometimes fill a whole brood chamber with honey in a day, and then they will immediately get the swarming fever. One cause for not getting comb honey I think I have mentioned, and another cause is leaving the section boxes uncovered in the spring or summer. By lifting the top cover, or the lid, I could look right down into the section boxes. The top boxes being just as high as the section boxes, it makes a great difference; the bees will then go down to the brood chamber without clustering about the brood. One can put much time on bees, or if one does not care to do so, one can put but little time on them. If you are in a hurry and do not want to take off your sections, when the middle sections are finished, remove them, placing empty ones outside, and they will soon seal over.

J. T. Catterson, of Brownsburg. I want to say this: The boxes I use are one-half the depth of the brood chamber, and with boxes of the same size as the brood chamber; consequently, when I put them on they cover the hive all over. Now, there is a great difference in the kind of hive you use. Some of the boxes cover the entire hive, and some do not. The boxes that I use I think would hold about the same amount as two of the boxes that you use; that is the difference. It depends upon what kind of a hive you use as to whether you put on more than one box or not.

Mr. Collins. We do not seem to remember that we do not show the bees just how to do their work, nor how to produce a queen from a worker larvæ, neither can we do their work for them; we can only assist them and lead them into the channels that will best assist them. Many people go through their hives, take off the section boxes, and go down into the brood chamber to see if the bees have a queen. To open the hives will discourage the bees, because they delight to work in the dark. When they are possessed of a feeling of uncertainty, they are not inclined to work. Now, most of you know that the bees will supersede the queen when she gets old. They know just as well as we do when she does not lay enough eggs. If you are working a large apiary, then will you have to give the bees your entire attention; but if you are not, or are working upon a smaller plan, then work on the neglige plan; do not meddle all the time with them, but give them just enough attention to turn their affairs into your channel.

Mr. Thompson. Can you get a first-class grade of honey by using these old sections?

Mr. Collins. I have never heard any objections by any of the parties that use the honey.

The President. I regard this as a very fine brand. Take the half finished sections of the previous year. The new-made sections are always white and equally good, and if they have some honey in them, so much the better. I never consider a half-filled section thrown away, for the bees will go directly to work there, and it seems to me it is almost always for the better.

Election of officers for the following year:

President—Walter S. Pouder.

Secretary—Mr. E. S. Pope.

Vice-Presidents—Dr. J. M. Hicks, Richard Kittley, Geo. P. Wilson.

Treasurer—Mrs. Olive McCurdy.

The association thereupon adjourned until 7 P. M.

EVENING SESSION.

The convention again met and was called to order at 7:30 o'clock, with President Russell in the chair.

The President. To commence our evening session we will have the question answered, "How Many Bees Constitutes a Colony?"

Dr. Collins. In a nucleus, 10,000 to 12,000; a weak colony, 20,000; in a good colony, 40,000 to 60,000.

The Doctor said the number of bees in a pound were 6,000.

The President stated that his attention had been drawn to the injustice of the State Premium List in not giving more encouragement to actual owners of bees, thereby getting a better exhibit of actual owners, as not being quite right, for the large bee supply establishments could get honey from other States and thereby cut out the true home producers.

REMARKS.

Dr. Hicks. That is right, because the exhibitor makes his entry as an exhibitor of honey, etc. Citizens of other countries make their exhibits, then come to this country to exhibit. Therefore it should be allowed.

Mr. Pope. I don't agree with my friend, Dr. Hicks, as the object of the State in the Premium List is to encourage our citizens in apiaculture, who are the real producers of honey.

Mr. Pouder. That is wrong.

The President. I have received letters for the convention to discuss the question of the State Premium List being so made out that it will *encourage* the *actual producers* of the bees.

Dr. Hicks offered the following resolution:

Resolved, That it is unwise, as well as an injustice, to give or award premiums to wholesale dealers who exhibit honey at a county or State Fair against actual producers.

Carried.

Mr. Pope offered the following resolution:

Resolved, That the State Board of Agriculture make a class of exhibitors that will encourage and admit all exhibitors, whether producers or dealers.

Concurred in.

One gentleman stated that he had lost his bees after they had been working on currant and gooseberry bushes. The bushes had been sprinkled with paris green to kill the insects that were destroying them

Dr. Collins. The cause of the bees dying was from the effects of the poison poured on the bushes.

And that was the decision of others present.

Mrs. Olive McCurdy, Treasurer, reported cash on hand belonging to the association to be $7.00.

The convention adjourned *sine die.*

FARMERS' INSTITUTES

UNDER THE AUSPICES OF

Purdue University School of Agriculture.

Partial Report of the Work for the Institute Season of 1893-4.

In previous years the selection of outside as well as of home speakers has been left largely in the hands of the county chairmen and local programme committees. An inspection of the classified statement of disbursements showed that a relatively large proportion of the Institute Fund was expended in paying the per diem and traveling expenses of Institute workers, thus leaving a small allowance for the local expenses of the several Institutes.

After due consultation with local officers and workers early in 1893, it was decided by the General Committee to modify the plan of conducting Institutes, for the double purpose of securing greater economy and greater efficiency in the work.

PLAN OF CONDUCTING THE INSTITUTES.

It was decided, first, to hold four Institutes instead of three in a series each week: second, to hold two simultaneous series of Institutes each week, as heretofore; third, to assign two speakers who should attend all the meetings of a given series.

By increasing the number of meetings per week in a series, and assigning the *same* speaker to the several meetings of the series, it was believed that a considerable saving in traveling expenses might be effected, and that the direct apportionment to the several counties for *local* expenses might be proportionately increased.

According to the books in the Superintendent's office, the amount expended upon speakers in previous years averaged a little more than $30 per Institute, leaving less than $15 for the local expenses.

By following the plan outlined above, the committee believed that the traveling expenses could be reduced at least $5 per Institute on the average, which would permit an increase of that amount for defraying local expenses. Accordingly, $20 was apportioned to each Institute for local expenses, and $25 was reserved for paying the per diem and traveling expenses of the assigned speakers, who were directed to present their bills to the Superintendent of Institutes, and not to the several chairmen as heretofore. This plan of paying the assigned speakers relieved them of the necessity of estimating their expenses before they were actually incurred, and thus prevented the unequal charges which many of the chairmen had previously complained of. In all other respects the plan of conducting the work was essentially the same as in previous years.

THE NEW PLAN SUCCESSFUL.

At the close of the Institute season, March 31st, it was found that the new plan had worked out quite in accord with the expectations of the General Committee on Institutes. The $25 reserved for traveling expenses and per diem of speakers was found to be sufficient for this purpose. The county chairmen not only had $5 more than heretofore for defraying the *local* expenses of their respective Institutes, but they knew exactly how much money they could expend in advertising, printing programmes, hall rent, etc., etc., and were thus enabled to go forward with a reasonable degree of assurance that they would not find themselves with a deficit at the conclusion of their labors. As a result of this, the Institutes were more thoroughly advertised in most cases than ever before. That the Institute work was more successful the past season than in any previous one is shown:

1. By increased attendance in a majority of the counties.
2. By an increase in the average attendance throughout the State.
3. By the holding of ninety-two Institutes—one in each county—exactly according to schedule, which has not been accomplished in any previous year.
4. By a decided improvement in the quality of the work, both as regards the papers of assigned and home speakers and the discussion of the same by the audiences.
5. By a better appreciation of the Institute work, and a more general interest on the part of those in attendance.

In order to show how well the work was received and how heartily it was endorsed, brief extracts are here given from the official reports of the secretaries. In order to save space the name of the county only is given in each case, and the extract from the report of the secretary in said county immediately follows:

ADAMS. The interest is more than 50 per cent. better than any previous meeting. The Institute was a grand success in every particular.

ALLEN. The assigned speakers gave excellent satisfaction. Local speakers all did well. Hall in which meeting was held too small and many could not be seated. Secured City Hall for Thursday's sessions; many attended both forenoon and afternoon sessions, and could not secure seats.

BARTHOLOMEW. In point of interest the Institute was a decided success. Papers of assigned speakers interesting, profitable and well received. Papers by home talent highly appreciated.

BENTON. Interest nil. Court in session. A large sale. Our President and others on duty at court. Have learned, though, several good things which, through our failure, will be avoided in future. A better organization is being effected.

BLACKFORD. The second day rainy, preventing a better turnout. The regret of the Institute was unanimous that the hall was not packed to hear Mr. Babcock. The general verdict is that he (Mr. Kelsey) is the right man in the right place. (The persons named above were assigned speakers.)

BOONE. Our meeting was a decided improvement over any previous one, both in numbers and interest. Our ladies brought out the finest display of butter that was ever seen in the county, which was a very interesting feature.

BROWN. Our Institute was not a success for the reasons that it was not advertised much, no programmes; court and a primary election were going on. Institute was much appreciated by all present. (The lack of preparation was due to the death of the chairman sometime previous to the holding of the Institute.)

CARROLL. A greater degree of interest manifested than has been shown at any previous meeting. Attendance so large that each session was opened promptly on time.

CASS. The Institute was a great success, with good attendance and highly appreciated.

CLARKE. C. M. Hobb's excellent paper on "Planting and Care of an Orchard" well received. Right man in the right place. Dr. D. W. Voyles made the best talk at the Institute on "Profit in the Dairy and How to Secure It." Prof. Borden procured excellent music for the occasion, decorated the hall with costly flowers from his own greenhouse, and deserves the highest praise.

CLAY. Interest good. Conditions unfavorable on account of roads. Assigned and home speakers all presented able papers, and were commended by the Institute.

CLINTON. We have lived down the factional opposition to Farmers' Institutes so pronounced in the early history of the work in this county. We have not a hall in the city large enough to accommodate us. The work is firmly on its feet and I hope will continue to grow.

CRAWFORD. Though the attendance was small there was much interest manifested and a large amount of useful information presented to the meeting, and the discussions will certainly result in great good to those in attendance. There will be an effort made to make the next meeting such an one as will bring together a much larger number of people.

DAVIESS. Exceptionally good interest on the part of those present. Our greatest difficulty seems to be to get the people to understand that it is not political and that it is for their benefit.

DEARBORN. First day, roads slippery and farmers unprepared for same. Second day, rain. Good results were obtained. I feel sure some twenty-five or thirty new friends of Institutes were made among our younger men.

DECATUR. The Institute was held in a neighborhood that heretofore knew but little of the Institute work, some of them not even knowing that there was a State appropriation for that purpose. From the interest manifested in the meeting I think it was a wise move to hold the Institute at Lett's Corner this year.

DEKALB. There was a great degree of interest manifested on the part of all to make the Institute a complete success. The people of St. Joe Station spared no pains in making preparation. There was more interest taken on the part of the citizens to make the Institute a success than at any other Institute held in the county. All speakers did well.

DELAWARE. Our Institute was one of the most successful ever held.

DUBOIS. The papers were excellent. The audience was well pleased. I doubt if you had a better Institute in the State.

ELKHART. The annual Farmers' Institute for 1894 was the best and most successful ever held in the county. The interest taken was intense.

FAYETTE. The subjects presented by the speakers on programme were well discussed by many others. Crowded house during all the sessions of the Institute.

FLOYD. We consider that our Institute was fully up in interest to any heretofore held. The attendance was beyond that of last year.

FOUNTAIN. We had the arrangements made for one of the best Institutes in the State, and would have had it, but we happened to strike the wrong date. A severe storm was upon us the first day and the second day was very cold, but notwithstanding all that we had the best one we have yet held.

FRANKLIN. Larger attendance and more interest manifested than heretofore.

FULTON. Quite an interest manifested considering the unfavorable weather. Rained both days, making the roads in bad condition.

GIBSON. Our farmers took great interest in the Institute, but I think the old way preferable to the present one, as our people like to have more than one speaker from abroad. (Two speakers attended this Institute, but the Secretary means that both should be present throughout the Institute.)

GRANT. The degree of interest manifested was large and continued throughout the sessions. The Institute was declared to be a success by all that were heard to express themselves. The assigned speakers well received. Local talent was all good.

GREENE. The Institute has been much more successful than before, because of a greater interest being manifested.

HAMILTON. The meeting well attended. The interest good. The discussions lively. Everybody satisfied.

HANCOCK. Good interest manifested all the way through. It was a success.

HARRISON. The Institute was quite a success in every respect. All that were there seemed to be benefited thereby and had only words of praise for it. Entire county is suffering more or less from la grippe, which kept a great many away and made our attendance much less than it would otherwise have been.

HENDRICKS. The public was well entertained and pleased with the speeches. It was good.

HENRY. Had a very interesting Institute and I think a very profitable one. Both the assigned speakers were present and gave practical talks.

HOWARD. The Institute was not attended as well as it should have been. It was very interesting throughout. Many of the farmers highly appreciate them, and are eager to gain new thoughts and suggestions.

HUNTINGTON. In point of attendance the Institute was not what the management would be satisfied with, but in point of interest on the part of those in attendance it was all that could be desired. The chairman was obliged to curtail discussion in order to complete the programme.

JACKSON. The Institute was favorably commented upon by those in attendance as being profitable, but it was wasted on empty seats, as the attendance was very meager.

JASPER. The weather was very unfavorable and the roads blockaded with snow-drifts, hence it was very difficult for persons living at a distance to attend. The interest manifested was very marked, many taking part in the discussions on the different subjects. Considering the weather, the attendance was better than we could have expected.

JAY. I think the Institute the best that was ever held in the county. The interest, I think, never was better and the attention could not be excelled. The dullness of the times perhaps affected us to some extent, but withal it was the best Institute that we have ever held.

JEFFERSON. A little hesitancy in discussion was noted at first, but the audience soon became free and easy, and the Institute proved to be the most interesting ever held in this county. The weather was so threatening on Friday and so disagreeable on Saturday that none but the "gritty" would venture out, and, hence, most of those present might be styled the cream of the rural population.

JENNINGS. The programme was well carried out as arranged. The subjects, for most part, were ably presented. The discussion was good. The best Institute ever held in the county.

JOHNSON. There was more than usual interest. The attendance was reduced by a severe storm, and by the second day's sessions occurring on Saturday.

KNOX. As Monroe City had made such a grand success of the Institute, everybody was loud in its praise, and wanted to hold it here again.

KOSCIUSKO. We have found that the interest is increasing to such an extent that a two-days' session is too limited to satisfy the interest.

LAGRANGE. All speakers were prepared and in earnest. All were delighted with Terry. Stevens good. Had the weather been fine we should have been compelled to go to the woods for room.

LAKE. Interest seems to be on the increase. It was quite cold here and roads rough. The assigned speakers were well received, and, I think, did good work.

LAPORTE. The assigned speakers were well liked and their papers and talks were very instructive to all.

LAWRENCE. On first day weather unfavorable; attendance small, but interest well maintained. On second day, a larger attendance, with increased interest. On the whole the Institute was a success.

MADISON. Each session of the Institute was full of interest and will be long remembered as the best that has ever been held in the county. It was impossible to accommodate all in the court-room.

MARION. The Institute was considered a decided success; better than any heretofore in point of attendance. A number wished that the Institute might continue another day.

MARSHALL. The Institute in attendance and interest manifested can not be otherwise than beneficial to all who were present. The two days were very stormy and rainy and the roads were in bad condition, but the farmers came, many of them ten and twelve miles, and brought their wives and daughters with them. Fully 35 per cent. in attendance were ladies—among the best in the county. The Institute was a success.

MARTIN. Weather fine. Business men treated us nicely. The farmers present took an active interest in all the work, using all the time allotted for discussion.

MIAMI. While the attendance of the Institute was not large, much interest was manifested by those present. All expressed themselves as benefited by attending. The great trouble is to get the farmers to avail themselves of the privilege they have of attending these meetings.

MONROE. The attendance was small, and I must say the interest was not what it should have been. It was better the second day than the first. The hall was not very good, but the best we could get.

MONTGOMERY. I am of the opinion that Institutes and the ideas brought out at discussions therein will be of great benefit to the farming community of this county and of the State, if you can get those interested therein to adopt the new and better methods.

MORGAN. Interest and success beyond expectations. Best Institute yet held in this county.

NEWTON. On second day a lively interest was shown, but the attendance was small on account of the very severe weather.

NOBLE. Marked degree of interest last day. Assigned speakers well liked.

OHIO. There seems to be a feeling in this county, among the ladies, that it is not the place for them. Send us one or two ladies next year. There is a growing interest in favor of Farmers' Institutes, and those present were deeply interested in the work.

ORANGE. The attendance at the various sessions was not large, but those present were well paid by the information gained and by the enjoyment they had in the social part of the meeting. It was unanimously declared to be the sentiment of the people that the Institute was a benefit to the public and should be continued.

OWEN. The interest manifested was very much better than ever before, and may be said to have been enthusiastic. The smallest attendance at this time was at least double the largest heretofore, but we still have farmers who denounce the Institute, and who refuse to attend, although in town and had time to do so. Many good men who heretofore ignored the Institute, attended and became converts as to its value, and will hereafter be good workers for its continued success. The numerous exhibits of corn showed that Owen County can produce the best corn in the world, notwithstanding the drouth. Other exhibits were not so numerous, but of extraordinary quality. The exhibition was a potent factor in arousing an interest.

PARKE. Institute a success. Mr. Sieg made two interesting and instructive talks. Miss Andrews gave two practical lectures on the art of cooking, which were very interesting, especially to the ladies. She left a host of friends at Rockville.

PERRY. The interest manifested by the farming communities for ten or twelve miles distance was marked, most schools being dismissed. The queries which were numerous and practical, elicited much discussion.

PIKE. The farmers do not take the interest in this work they should, especially those who need it the most. Those who do are among the best farmers, and if there were any means of getting out farmers who need this work, much better results would follow. Assigned and home speakers did good work, and everybody who attended was well paid for doing so. Think good results will follow.

PORTER. We are pleased with the speakers you sent us this year. Thanks to you for such. Send the like every time. Speakers to be of benefit to the husbandmen must be practical and keep within certain limits that the thorough farmer can follow.

POSEY. The best Institute yet held in the county, in point of interest, attendance and able papers.

PULASKI. I consider our last Institute the best ever held in the county, more interest being manifested, better attendance and more prompt action. I consider that all the people need to more thoroughly appreciate this work, is to have the question more thoroughly agitated.

PUTNAM. Interest intense and the success perfect. Other attractions in the county kept some people away. It was the best Institute we have ever held.

RANDOLPH. The Institute was held under very favorable conditions. It was advertised in nine newspapers, and by sending programmes to every school district in the county and having teachers distribute them so as to get one in the hands of each family. The interest was all that could be desired from the first session to the last. It is impossible to give actual count. The room was full at first session, crowded at the second, and so on throughout.

RIPLEY. The people of this county do not turn out as they should, but the farmers in attendance were benefited, I think, very much. The roads were in miserable condition, which probably prevented farmers from a distance from attending.

RUSH. The court being in session and the various churches observing the week of prayer, kept many away from the meetings, but there is evidently a growing interest felt in the work of the Institute, and I think there will be a largely increased attendance next year.

SCOTT. Good interest was manifest throughout tne meeting. It was very noticeable that farmers are learning very fast to farm in an improved manner in this county, and we think the Institute has helped largely in this line of work.

SHELBY. Our Institute was the most successful ever held in our county. Governor Matthews kindly favored the Institute with a description of planting corn by listing, which was instructive and well received. Mr. and Mrs. Mount captivated all present, and we congratulate ourselves and the State University for such able representatives of the Institute work.

SPENCER. Interest intense. All expressed themselves pleased and benefited.

STARKE. Everything in the way of preparation was done that possibly could be done, and the interest and success of the Institute was all that it could be in two days' time. The Institute was decidedly the best one ever had. The farmers have been greatly encouraged.

ST. JOSEPH. Our hall was not nearly large enough to hold the people. Hundreds were turned away. The interest taken could not have been better.

STEUBEN. The best Institute in every respect ever held in Steuben County. Although the roads were very muddy the attendance was good and interest intense. We can not speak too highly of the work done by T. B. Terry and J. A Mount.

SULLIVAN. Most interesting we have ever held; the audience composed of the foremost farmers of the county, some coming sixteen miles. The roads extremely bad and weather disagreeable.

SWITZERLAND. Great interest was manifested. Attendance greater than ever before. The Institute work is growing very much each year.

TIPPECANOE. The Institute was held under very unfavorable circumstances, the weather being very cold and the public highways badly drifted with snow. It was a very enthusiastic meeting, and the interest is manifestly on the increase.

TIPTON. Held under most unfavorable circumstances, owing to the severe snow storm of February 12th. Mr. Babcock was snow-bound and did not arrive the first day. He proved to be a very enlivening worker. His talk was so good that he aroused a lawyer from his lair, and a brisk time was had. Mr. Bowles proved a very acceptable and interesting talker, and entertained the Institute splendidly.

UNION. Cal. Husselman as an Institute worker is a complete success. He gave our people eminent satisfaction. We call your attention to the difference in our attendance from year to year. We had six hundred people in the room at one session.

VANDERBURGH. The farmers seem to be more interested in the work now than at any previous time. The Institute was generally considered very successful.

VERMILLION. The assigned and home speakers presented excellent papers, which were well received. The Institute was a success.

VIGO. Snow storm early in the week made bad roads, otherwise the attendance would have been much larger than in previous years. The interest of speakers and audience greater than ever before. A fine class of farmers in attendance. Discussions by farmers better. Everything promises great gains next year. There is a better realization that the Institute is for farmers.

WABASH. I think the meeting was a complete success. The only unfavorable thing was the small attendance the first day, due probably to a printer's mistake in date.

WARREN. We consider the Institute a success both in point of numbers and interest manifested by the discussion of the various subjects.

WARRICK. The Institute showed good interest, though the attendance was small. The assigned speakers—Messrs. Collins and Robinson—rendered faithful services, which were appreciated.

WASHINGTON. The interest was good from first to last. All in attendance were there to be instructed, and seemed to feel well repaid for coming out. There were quite a number of visitors from other counties, who came on personal invitation, and Washington County lost nothing by comparison with other counties. *All* visitors were entertained in the homes of near-by farmers, and we think that a good foundation was laid for a good Institute next year. The speakers all said it was the best Institute they had attended this year, and one said it was the most interesting one he had ever attended.

WAYNE The degree of interest was remarkably good, and the conditions seemed to be favorable for the success of the Institute.

WELLS. We have just closed the most successful Institute ever held in our county. The work is growing, and citizens, whether in town or country, vied with each other in making it a complete success.

WHITE. The Institute was the first one held in Brookston, and was extremely beneficial to the community. It was well attended by the county's best men. The education of farmers is appreciated by them, and many expressed themselves as greatly benefited.

WHITLEY. Greater interest was shown than ever before by a larger number of workers and speakers, and by the public generally. Mr. Terry and Mr. Mount did excellent work and were highly spoken of by every one. Never had better workers. More active local workers and speakers than ever before.

The foregoing extracts are submitted without comment. It is only necessary to add that the Superintendent is in possession of numerous letters from Institute workers and local officers bearing testimony to the high grade of work done and to the increased popularity of the Institute work.

Mr. T. B. Terry, of Ohio, a veteran worker in this line in several other States, after spending one month in Institute work in Northern Indiana, wrote to the Superintendent warmly commending the Institutes which he had attended, and added, "I do not see how they could have been made better."

ATTENDANCE AT FARMERS' INSTITUTES.

From the official reports of the secretaries, the following table, showing attendance at the several Institutes, has been compiled. The left hand column shows the average attendance at Institutes previous to last season. The second column shows the number of sessions held last season, and the right-hand column the attendance. In every case the figures given show the average attendance at the different Institutes and not the aggregate.

TABLE SHOWING ATTENDANCE AT FARMERS' INSTITUTES.

COUNTY.	Average Attendance in Previous Years	No. Sessions in 1893-4.	Attendance in 1893-4.	COUNTY.	Average Attendance in Previous Years.	No. Sessions in 1893-4.	Attendance in 1893-4.
Adams	100	5	185	Madison	385	5	367
Allen	300	5	445	Marion	115	5	155
Bartholomew	105	5	105	Marshall	379	5	610
Benton	68	5	51	Martin	115	5	193
Blackford	181	5	93	Miami	800	4	58
Boone	210	5	405	Monroe	85	5	58
Brown	26	3	25	Montgomery	150	5	308
Carroll	127	5	146	Morgan	118	5	93
Cass	261	5	66	Newton	103	3	105
Clark	38	5	136	Noble	83	5	72
Clay	65	5	250	Ohio	83	5	45
Clinton	135	5	189	Orange	133	5	24
Crawford	41	5	25	Owen	150	5	219
Daviess	78	5	119	Parke	120	4	126
Dearborn	215	5	140	Perry	114	6	196
Decatur	209	5	239	Pike	50	2	57
Dekalb	154	6	399	Porter	49	5	285
Delaware	427	5	520	Posey	262	5	370
Dubois	61	4	193	Pulaski	85	5	75
Elkhart	174	5	555	Putnam	116	5	435
Fayette	177	4	800	Randolph	286	5	485
Floyd	127	5	944	Ripley	60	5	53
Fountain	197	4	154	Rush	189	5	101
Franklin	93	5	152	Scott	158	5	172
Fulton	139	4	93	Shelby	167	4	400
Gibson	277	5	344	Spencer	82	5	132
Grant	215	5	110	Starke	154	5	395
Greene	92	5	74	St. Joseph	516	6	1,250
Hamilton	332	5	280	Steuben	180	5	265
Hancock	169	4	98	Sullivan	29	5	44
Harrison	106	5	102	Switzerland	374	5	311
Hendricks	184	4	192	Tippecanoe	133	6	129
Henry	250	5	182	Tipton	234	5	169
Howard	167	5	145	Union	166	5	470
Huntington	385	2	217	Vanderburgh	187	5	264
Jackson	70	5	26	Vermillion	350	5	111
Jasper	122	5	67	Vigo	214	5	217
Jay	135	5	280	Wabash	197	4	120
Jefferson	119	5	160	Warren	39	5	153
Jennings	115	4	112	Warrick	148	5	44
Johnson	262	5	218	Washington	133	5	226
Knox	120	4	550	Wayne	439	5	340
Kosciusko	304	5	600	Wells	370	5	485
Lagrange	200	4	400	White	60	4	97
Lake	82	5	86	Whitley	201	5	258
Laporte	227	5	271				
Lawrence	90	5	47	General Average	177		231

AN INCREASED APPROPRIATION FAVORED.

Resolutions approving the Institute work and favoring a continuance of the present appropriation, or an increase, were passed in sixty-eight counties. Of the sixty-eight counties passing resolutions, eight favored a continuance of the present appropriation, twenty-five an increased appropriation and thirty-five favored an annual appropriation of $10,000 for Institute work. It thus appears that sixty out of the sixty-eight counties passing resolutions favored an increase in the appropriation for this work. It is due the other counties to say that almost, if not quite all, had in previous years passed resolutions in approval of the Institute work, many of them favoring an increased appropriation therefor, but as the General Assembly did not convene last winter it was not considered necessary to take further action the past season.

In this connection it is but fair to say that the success of the Institute work thus far is largely due to the generous support of the people of the State, both in town and country. But for the generous donations of time, effort and money on the part of farmers, business and professional men, the Institute work could not have been conducted with such vigor and success up to the present time. There is, however, I think, a growing feeling among the most ardent supporters of the Institute work that the duties and burdens fall unequally hard upon the shoulders of the few who are especially interested, and this is the reason for the frequent passage of resolutions in approval of an increased appropriation for this work. An appropriation of $10,000 per annum for Institute work would be less than one-half cent per capita of our population. With such an appropriation there would be little, if any, need of subscriptions or collections to supplement the Institute fund. In other words, the burden of supporting the work would be so distributed that no one would feel it. The work is for the common good of all, and as such should have the support of all our people.

It is the deliberate judgment of the writer that $10,000 per annum could be wisely expended upon Farmers' Institutes, and that such an expenditure would materially raise the intelligence and rank of the farmers and greatly increase the wealth of our State.

HOW THE APPROPRIATION HAS BEEN EXPENDED.

The following is a classified statement of expenditures of the Institute fund to date, May 18, 1894, as shown by the records in the office of the Superintendent:

Bills of County Institute Chairmen	$1,659 39
Traveling expenses of assigned speakers	1,120 63
Per diem of assigned speakers	1,075 62
Salary of Superintendent	266 66
Stenographic and other clerical work	275 23
Supplies	15 55
Printing and stationery	71 00
Postage	89 94
Telegrams, freight and express charges	29 92
Food materials to illustrate lectures on cooking	9 15

Miscellaneous	$2 10
Unexpended balance to date	384 81
Total	$5,000 00

PLAN OF WORK FOR 1894-5

The approval of the plan of work adopted for last season has been so general and so hearty, that it has been decided to continue it with slight modification for the coming year. It is the general desire of the chairmen that but *three* meetings in a series be held, instead of *four*, as was the plan the past season. This will permit each assigned speaker to attend every Institute both days, and will be more satisfactory both to the speakers and audiences It will, however, increase somewhat the expenditures for traveling expenses of assigned speakers, and will necessitate the utmost care on the part of the general committee in so arranging the Institutes as to reduce the traveling expenses to the minimum. It is hoped in this way that the committee will still be able to make the direct apportionment of TWENTY dollars to each Institute for local Institute expenses.

Many of the chairmen have also signified a desire to have a voice in the selection of the assigned speakers, and in accordance with this desire the several chairmen have already been requested to express their preferences as to assigned speakers. It will at once be apparent to every one that as the counties must be thrown into groups of three each in a series, it will be impracticable to grant every request for speakers. The Superintendent will, however, strive earnestly to heed the wishes of the majority in this regard.

The Superintendent would respectfully request the county chairman and local programme committees to bear in mind the necessity of the closest economy in expenditures on account of assigned speakers. It will be impracticable, in some cases, to grant requests for particular speakers, owing to the expense involved. While every request for speakers will receive careful consideration, the Superintendent believes it his duty to exercise great care in the assignment of workers, and he will therefore strive to get the very best Institute workers available, and assign only persons of experience and acknowledged ability as Institute workers.

In behalf of the Committee on Institutes the Superintendent desires again to express his appreciation of the cordial support rendered by local officers and Institute workers throughout the State. Almost without exception the relations have been exceedingly pleasant. It is especially gratifying to be able to say that the local officers, in the main, have shown a very intelligent appreciation of the difficulties to be met by the Superintendent in adjusting the schedule of Institutes to the satisfaction of all concerned. For the generous spirit of helpfulness and kindly forbearance which the local officers and Institute workers have so generally manifested, the undersigned is very grateful, and he will earnestly endeavor during the coming year to merit the continued cordial support and good-will which have so pleasantly characterized his relations with the Institute workers in the past.

Respectfully submitted,

W. C. LATTA,
Superintendent Farmers' Institutes.

PURDUE UNIVERSITY, LAFAYETTE, IND, May 18, 1894.

SUNDRY PAPERS READ AT FARMERS' INSTITUTES IN 1893-4.

INTRODUCTORY.

Through the courtesy of the State Board of Agriculture the Superintendent of Farmers' Institutes is able to present again, in abridged form, a few of the papers read at various Farmers' Institutes the past season. In order that these papers might be truly representative of the work throughout the State, the chairmen were requested to forward papers read at their respective Institutes. The following papers were sent in response to this request. In most cases the papers are mere abstracts of those read at the Institutes. In a number of instances, however, the original papers were forwarded and extracts made therefrom by the Superintendent. The late date at which the request for papers was made is, doubtless, the cause of the limited number forwarded for publication. The work will be begun earlier another year, in the hope of securing at least one paper from each county in the State.

HORTICULTURE.

HORTICULTURE.

BY THOMAS T. NEWBY, CARTHAGE.

[Extracts from a paper read at Rush County Farmers' Institute.]

Of the many kinds of fruit that may be successfully grown here the apple is of the most importance to us. We can have it in its natural condition and perfection, with a proper selection of varieties, and careful keeping, the whole year round. But since the severe winter of 1880 and 1881, when there was such great destruction of our fruit trees, our farmers became discouraged and have sadly neglected their orchards. This should not be. There had not been such destruction since fruit trees were first planted here, and there may not be again for years to come, if ever. We must and can have fruit, and for that purpose we must plant trees.

The situation for an orchard is important, so that should be the first thing to consider. Any good, well-drained land will do; but perhaps the most desirable would be a good soil, with clay subsoil; and the most elevated place on the farm is to be preferred, as fruit more often escapes late spring frosts on high ground, than in low valleys. I have often observed this, especially in peaches. My orchard is some seventy feet higher than some others in the Blue River valley near by, and I sometimes have a fair crop of peaches, when below they have but few or none. Fruit buds, and even trees, are not so liable to be killed on the high ground. The cause of this is, the cold air, being heavier, settles in low places. Having selected the location, it should be inclosed with a substantial fence, and the ground deeply and thoroughly plowed, late in the fall or very early in the spring. I prefer spring to plant all kinds of trees. A spring-planted tree, having a season's growth, is in better condition to withstand a severe winter than one transplanted just as winter sets in; and you avoid the risk of winter-killing, destruction by rabbits and field mice, and all care of them one winter, and get a bearing orchard just as soon. Apple trees should be at least 30 feet apart, and 35 feet would be better. Standard pears and cherries, 20 feet; peaches, 16½ feet, and plums, 16½ to 20 feet, according to variety. American or Chickasaw plums, such as Wild Goose, whose branches spread out much more than foreign varieties, should have at least 20 feet space between trees. Never plant plums in thick clusters—the tree agent to the contrary, notwithstanding. Air and sunshine are as essential for plums as any other fruit. Quinces should be ten feet apart. Dwarf pears here are hardly worth their necessary care and attention. It is best to have each kind of fruit to itself; though plums and cherries suit best in the chicken yard. A few peach trees near by the plums, will give fruit free from worms, as the curculio prefers the smooth plum to the downy peach.

In procuring trees have nothing at all to do with the unknown tree agent, who is always around with his fine pictures and slick tongue. Make out a list of varieties wanted, and go to the nearest reliable nursery and make your own selection of trees. Have them carefully dug, "puddled," and protect the roots well; take home and "heel in" at once. Of apple, pear, cherry and plum, get three-year-old trees, with straight stems, trimmed up about three feet high, and well branched heads. Many advise planting only small trees, being easiest transplanted and surest to live, they say. But I find larger trees, properly taken up, heads cut back, and carefully planted, will live just as well, and you do not have to be your own nurseryman a year or two to get your tree in proper shape; and then you get fruit sooner from the older tree.

Again, they say that low heads are the best to protect the trunk of the tree, gather the fruit, etc. The theory is correct, but in practice very low heads are a nuisance. You do not want to crawl on "all fours" to work around the tree, pick up wind-falls, and the like. Perhaps a medium low head is most satisfactory. As to budded or grafted trees, "whole root" or "piece root," I would not turn my hand over for the difference. But I would prefer trees grafted or budded on seedling stock three feet from the ground. That such trees are more hardy, the numerous old specimens of high grafted trees throughout the country abundantly testify.

The trees should be planted just as soon as the ground is in working order. Each tree should have its roots examined, and all broken or mangled parts cut off smoothly from the under side, and planted at once. Set it a very little deeper than it grew in the nursery, and in a hole large enough to take in all the roots without cramping. Incline the tree just a little to the southwest. This is to prevent prevailing winds from that direction forcing it to lean the other way. In that case "sun scald" is sure to result, and then borers are apt to get in their ruinous work. Then work in good fine soil with the fingers among the fibrous roots. When the roots are well covered with soil, press firmly all over them with the foot; fill in the remainder and leave unpressed. When all are planted, *pruning* is next in order, and this is an important matter, involving not only the life or death of the tree, but its beauty and usefulness as well. The ideal tree is one with a single leader, and branches gradually shortening to the top—a regular pyramid. Such a tree supports its load of fruit, and resists heavy winds safest, though such are rarely seen. More often we see three or four, or even more leaders, and such are very liable to split or be broken by heavy crops or storms. Look carefully over your tree, and with a sharp knife thin out the side branches, cutting close to the stem so as to form an open head. Then cut back each of the remaining branches, leaving about one-third, and shorten the leader above all branches one-half or more. This is necessary to balance against the large amount of roots cut off in digging, and it throws the sap into a fewer number of buds and insures a better growth. Again, one should know something of the habit of growth of a tree to prune intelligently.

Some varieties of apples make a very spreading growth, like the old Vandevere Pippin, while others grow quite compactly, as Northern Spy, etc. We can shape the head very much as we like by the first prunings. When the last or top bud on a shortened branch grows and forms a shoot, that shoot is always somewhat bent or inclined inward or outward, according to its situation on the branch. Then to make the head more open, cut just above a bud situated on the branch on the outside of the head, and to make it more compact, cut above a bud on the inside of the head, or next to the leader. The orchard should be gone over every year in March and each tree examined, and where limbs have grown out too close together, cut off the weakest, and cut back those that have too much outgrown others. Cut off water sprouts and dead limbs, and limbs that cross or interfere with others. Do not remove large limbs unless actually necessary, and then cover the wound with wax or thick paint. Trees should not be pruned so that the fruit is borne only on the tip ends of the limbs. Small bearing branches should be all through the head, and yet open enough to admit air and sunshine and also thorough spraying. These remarks will apply to old neglected orchards. Young water sprouts may also be rubbed off in summer and rank growths may be checked by pinching out the growing bud.

After the heads of plums and cherries are well formed they do not require very much pruning. The cherry, especially, should be let severely alone.

The peach is different. It should be planted when one year old from the bud, all side branches removed, pruned to whip and the top cut off, leaving the stem two or three feet long. There are always plenty of buds on the stem of such peach trees to form the desired head, by pinching out some and leaving others about the time growth begins. After this the heads should be thinned out and annual growth cut back about one-third each spring. The peach being rather short lived here, a few trees should be planted every two or three years.

The orchard should be cultivated every year till the trees begin to bear, then sown in clover. Corn is perhaps the best crop for the first year or two, giving a chance for thorough culture and furnishing partial shade to the trees during hot weather, which is an advantage. Potatoes are a good crop for a change. Wheat or oats should never be sown in a young orchard. The ground gets too hard and dry. Loose surface soil is the best mulch for a young tree, but if a tree is situated where it is inconvenient to cultivate, then a heavy mulch of half-rotted straw is of great advantage, and should not be omitted the first year, but should be removed on the approach of winter, as it would form a harbor for field mice. Of course, the fertility of the soil should be maintained when crops are taken off. No kind of stock but hogs should be allowed in the orchard. They are not liable to do damage, and are desirable, at times, to eat the worthless and wormy fruit. To keep rabbits from trees, set cornstalks two and one-half feet long around the tree and tie firmly in place. This is better than paper. Blood or fresh cow manure mopped on the trees is effectual. Soft soap is good, but must not be used where hogs go. Some pruning may be done in the fall and limbs left under the trees till spring. Rabbits will eat on them in preference to the young trees. Litter should be raked away from the trees and heavy snows trod down around them to prevent field mice from girdling them. A mound of earth six or ten inches high, or better still, of leached wood ashes, will keep them away.

When the orchard is ready to bear, then its fruit enemies must be looked after. The greatest and most important of these, of the apple and pear, is the codling moth. It is a small, grayish moth, hardly three-fourths of an inch across its spread wings. The female lays her eggs in the blossom ends of these fruits, after the bloom falls, doing the work mostly at night; from which little worms are soon hatched that eat their way into the core of the fruit, which causes it to fall prematurely, or if it hangs on till ripe, it is always in a sadly damaged condition. Now, for this pest we have in Paris green or London purple nearly a complete remedy. I have sprayed my orchard with Paris green for four years, and even in the past poor fruit years I was amply repaid for the labor and expense.

I have a spray pump fitted to a coal oil barrel, that holds about fifty gallons, and is hauled on a small sled. To the discharge pipe of the pump is attached fifteen feet of three quarter-inch rubber hose, at the end of which is the spraying nozzle. One end of a light ten-foot pole is fastened near the nozzle, with which the spray may be directed to any part of the tree. One man tends the horse and works the pump, and one manages the spraying. A tree thirty feet in height can easily be sprayed all over. The first year I used six ounces of Paris green to the barrel of water. I have reduced the amount each year, till now I use only three ounces to the barrel, and think that the right amount. When the six ounces were used the leaves of several trees were badly damaged, but the weaker solution does no injury to them, and by having a weak solution you can spray more thoroughly without injury, and be surer to get a little of the poison in the blossom end of each fruit on the tree, which is sure death to the worm. All parts of the tree should be sprayed till it begins to drop off of the leaves. The solution should be kept thoroughly stirred up, as it is inclined to settle to the bottom of the barrel. The proper time to spray is soon after all the bloom is off, and then again in about two weeks. Two sprayings are sufficient for apples and pears.

Now, Paris green and London purple are poisons, and should be carefully handled. I wish to especially impress on any who may ever think of spraying, to never spray any tree when in bloom. Some plum trees in Carthage were sprayed last spring, while in full bloom, and the result was that several colonies of bees were entirely killed. Bees are of great benefit to the firuit grower in cross-fertilizing the flowers, and thus insuring a better crop, and we do not wish to destroy our own or our neighbors' bees; especially as it is surely known that then there is no good whatever done the fruit, and possibly may be much injury. So then I would repeat never spray any tree till the bloom is all off, and yet we must spray, but do it understandingly.

Jarring the trees daily and catching the "little turks" on a sheet, and destroying them, is a successful remedy for the curculio. A few plums of some special variety may be saved by tying up tightly in paper sacks, six or eight on a twig, in one sack sometimes; and they will ripen perfectly. Of course it should be done before the curculio puts its mark on them.

The only known remedy for pear blight is to cut off the affected limbs and burn them. I have lost many trees with it, but have had but little of it since first spraying my orchard with Paris green; and yet I do not know that it is a remedy. It is caused by a "microbe," a minute organism that gets in the sap of the tree, and there poisons and destroys it.

"Black knot" is a dreadful disease of the plum, destroying whole orchards, and sometimes extending to cherry and peach trees. The Damson plum and its varieties are generally affected first, but it will eventually spread to all. It makes its appearance on the small twigs, the sides of large limbs, or anywhere. It is a kind of fungus growth, and is propagated by spores. These minute organisms will float long distances in the air, lodge on a plum tree, and begin their deadly work. There is no remedy yet known, but to cut off and burn it; and there must be no half-way work about it, or it may be spread and destroy all the plum trees in the land. It is as contagious as small-pox or cholera. In Michigan they have a law imposing a fine to the extent of $100 and three months' imprisonment for any one who fails to destroy it, when properly notified of its presence on his trees. We have no law on it. It made its appearance on a few of my trees the past season, and I have destroyed it. It is rather difficult to find when the leaves are on, now it is easier. On coming to the county seat, a month ago, I was alarmed to see so much of it on many trees, from Arlington here, as well as here in the city. Large trees were just loaded with it. Now, each person present should cut out and burn all on their own trees, and insist that their neighbors do the same. A tree that is very badly affected, had better be dug out and the whole of it burned. Heroic treatment only will stamp it out.

Apple trees should be examined for borers, and, if it is possible, cut out and destroyed. The peach borer generally works right at the ground, eating the live bark and tender wood. They should be looked after and destroyed spring and fall. Air-slacked lime or weak wood ashes, applied close around the tree, once or twice a year, are good preventives. But do not wait until your trees are infested with them before applying. I personally know nothing of the contagious disease called "yellows," which is so fatal to peach trees in places.

An orchard of apples for home use should embrace several varieties, to give a succession of ripe fruit throughout the season; but should consist largely of winter apples. Some variety may fail to bear, when some other might bear and fill the place. Then, too, tastes differ, and it is well that all have their choice. If "variety is the spice of life," why not have some of the "spice" in apples? A market orchard should consist only of a few varieties.

PLANTING AND GROWING AN ORCHARD.

BY C. P. WARD, GUILFORD.

[Abstract of a paper read before the Decatur County Farmers' Institute]

In all the undertakings of man the end success must be in view or the business is a failure from the start. Nor is the business of planting and growing an orchard an exception. To be brief, we must at once begin with the selection of location Many have been the failures in this very important matter. The location most conducive to success is an eastern or northeastern slope, extending even to the north. Southern or western slopes are not desirable; south, extreme heat and drouth in summer, and changeable condition in winter; west, violent winds in summer, and cold and winds in winter The ground must be well drained; wet, low places should be tiled, drained, or better, the entire orchard plat, but this is not necessary to success.

Now for varieties: First, the home—commence with the earliest. Keep up a succession, not too many of a kind, for early, but for winter plant freely. We might give the names of a choice family orchard: Early Harvest, Summer Rose, Red Astrachan, Benoni, Duchess of Oldenburg; for fall, Rambo, Red Beitigtennèr, Wealthy; for winter, Ben Davis, Baldwin, Jonathan, Northwestern Greening, Rome Beauty, Salome, Suttons, Beauty Lancingburg. For commerce plant mostly winter sorts. Unless in Southern Indiana, early kinds; for northern markets plant tried kinds. Secure budded trees rather than grafted ones. If grafted, whole root grafts are preferred, as the whole root grafts or budded trees will live longer.

Having now finished the work preparatory to setting, we now go to the field. Plant where you expect to cultivate, avoid planting too close, 35 or 40 feet, not less. Air and sunshine are as essential to perfection in the development of an orchard as for a man. But they must have it in moderation, not in the extremes. Dig the holes two spades deep, two feet square, placing the subsoil at one side. Fill the hole six inches with top soil.

You are now ready for the tree. Place the tree in position or in line with your stakes, setting the convex side of the tree to the southwest, or the crook of the tree, as most tres are slightly crooked when budded and some when grafted on whole roots. This will avoid the tree scalding, should the concave side of the body be set to the southwest. Lean well to the west or southwest, that the tree may not lean to the east or northeast in a few years, which will again prevent the sun's direct rays from 12 to 3 o'clock on the body. Cover all the roots with top soil, tramping it firmly with your feet while the hole is being filled. Begin at once to form the head of your tree; avoid all sharp angles or forks in making the head. If you wait you will see your mistake when it is too late, and your tree may split or the removal of a limb may produce decay in the heart, which will bring death to your tree. Paint or wax all wounds in trimming over one-half inch in diameter.

I would now urge the necessity of thorough cultivation and fertilization. If your land is worn when you plant, apply fertilizers at once in the form of ashes, bone meals, nitrate potash or stable manures, as will be most convenient. We find a light dressing of stable manure each year, with a little ashes or lime, better than every other year or longer, always using it as a top dressing the same as for corn, not against the tree at all. You may rest the ground by clover or a crop of rye, and when nearly in head plow under or mow down and let it lay on the ground. Give the orchard the exclusive right to the ground after four or five years, but keep on cultivating and fertilizing.

Don't say you can't afford to lose the crop, for you can. Keep your saw and knife close at hand as these years go by, that discord may not enter the family in cross and crooked limbs. Sawing and scraping in the breezes make a symmetrical head. Do not trim out the center of the trees too much—enough to admit sunlight to insure health and color to the fruit. All this time do not forget the tree and fruit enemies. Watch the borer! Look for him the latter part of June and to the 20th of July, and again in September. His place of attack will be seen by a small patch of worm dust on the body of the tree. Spray without fail, early and late, especially bearing trees. Thinning fruit adds greatly to the size and value of the crop. Do not cultivate bearing orchards. Deep, shallow plowing, spring-toothed or Acme harrows and the like will be all that is needed. Follow these brief statements and you will be among the successful planters and growers of an orchard.

THE HOME.

PRIVATE HOMES.—THE BASIS OF PUBLIC SAFETY.

BY T. E. LITTLE.

[Extracts from a paper read before the Jennings County Farmers' Institute.

When John Howard Payne wrote:

> "Mid pleasures and palaces though we may roam,
> Be it ever so humble, there's no place like home,"

He expressed a great truth that finds a quick response in the hearts of men and women everywhere, and the association of John Howard Payne's name and personality with that song has made his fame eternal, because he has expressed a thought that like hope springs eternal in the human breast, and has linked his name with that of an idea in human society that lies very near its warmest affections and liveliest emotion. There is no place like home, high or low, rich or poor, gorgeous in embellishments or simple and plain, there is no place like it in all the world.

Even so sombre, gloomy and cynical a temperament as that of Lord Byron glows with temporary warmth and sunlight when he tells us in Don Juan:

> "Tis sweet to hear the watch dog's honest bark,
> Bay deep mouthed welcome as we draw near home."

The poem which brought instantaneous literary fame to Robert Burns was "The Cotter's Saturday Night," a poem based upon the incidents and transactions that took place about the evening fireside of the plain common people.

It is because of the fact that the home occupies so high and exalted a place in human society, that its possession becomes a duty which every man owes to himself, his family and society. It is because of the elevating influence of home life, the development of our better natures in the acquisition, defence and beautification of our homes, that the ownership of a home conduces in no small degree in raising up to the full stature of citizenship and the formation within us of a thoroughly developed and well rounded character. But the question of home ownership is not limited in its relations to the individual. In relation to the State it is a question of vital and far reaching importance. When the citizen is anchored to the institutions of society by the ownership and possession of a home, that very fact makes him a permanent part of the substance of the commonwealth, and a fixed champion of the government under which his vested rights are protected. With his home at stake and the rooftree that shelters his loved ones in the balance, he is more deeply interested in the preservation of peace and quiet in society and the maintenance and perpetuation of good government, than the man who has no capital invested in fixed and immovable property, that must remain where it is and withstand the storms, no matter from whence they come. The more homes owned by the plain, common people of this country the more secure the safety of the Republic.

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When the citizen has a fixed place of habitation in which his means are invested, and where his family is born and raised, he becomes one of the pillars of society, a safeguard against anarchy and revolution, and a bulwark for the protection of Republican institutions. The highest attributes of statesmanship are exhibited in the public servant, whose public labors result in legislation that makes it easier for the common people to acquire a home, and multiplies the number of home owners. It is because of the facts stated that I, for one, long for the day to arrive in this country when one hundred per cent. instead of sixty-six and two-thirds per cent. of the farmers in this republic shall reside on their own farms, and as many other people as possible live in their own homes.

If the importance of the ownership of private homes be conceded, the important inquiry naturally arises in our minds, is there anything that we can do to increase the desire of the rising generation to acquire and obtain possession of homes of their own in the future? And in answer to this question I desire to say that much can be done by us, even outside the limits of legislation, to build up a sentiment among the young in favor of home ownership, and to lay the foundation in the character of our children for an increase in the number of freeholders in this country.

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The modern local building association is perhaps one of the most effective cooperative agencies extant for enabling our citizens to acquire a private home, but even the building association is the outgrowth of lessons of economy and thrift inculcated by the fireside. The ability to obtain and own a home does not depend upon having enough money to buy one. Thousands of people have handled money enough to have purchased and provided a home, whose names continue to adorn the rent roll of other individuals. There must be in addition to sufficient money, a strong desire and disposition to procure and possess a home.

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In training children to become prospective home owners we should not forget that intelligent and mental culture are powerful instrumentalities in the acquisition of homes. That to keep the mind growing in proportion to the body it must be brought in contact with mind continuously, in some form or another; hence, in every home there should be placed a few good books by well selected authors, to serve as whetstones for the growing minds of the young prospective home owners that are residing there. The library need not be large, the books need not be numerous. The quality, rather than the quantity, should control in their purchase and selection.

To have a cheerful and attractive home it is not necessary to live in town; on the contrary, the typical home is found in the rural districts. In the country the forces of nature outside the house reinforce and make additions to the attractiveness within. Longfellow was impressed with the beauty of the rural home, when, in Evangeline, he says:

"Firmly builded with rafters of oak, the house of the farmer
Stood on the side of a hill commanding the sea.
And a shady sycamore grew by the door with a woodbine wreathing around it.
Rudely carved was the porch, with seats beneath,
And a footpath led through an orchard wide and disappeared in the meadow.
Under the sycamore tree were hives overhung by a pent house, * *
While further down on the hill was the well with its moss covered bucket, fastened with iron, and near it the trough for the horses.
Shielding the house from the storms, on the north were the barns and the farmyard.
There stood the broad-wheeled wains and the antique plows and the harrows.
There were the folds for the sheep, and there in his stately seraglio strutted the lordly turkey.
Bursting with hay were the barns, while under the sheltering eaves a staircase led up to the corn loft.
There, too, the dovecote stood with its meek and innocent inmates,
Murmuring of love, while above in the variant breezes numberless noisy weather cocks rattled all day of mutation."

What a lovely winter picture of the external features of a rural home that is. And it may not be inappropriate right here to state that the farm that is without an orchard and some shade trees, flowers and vines on it, is not up to the standard so far as attractiveness and homelikeness are concerned The typical rural home, the kind that is calculated to make a strong impression on our children, should be a thrifty home. The whole place should bear evidence of care and industry. Beauty should not be subordinated altogether to utility. Weeds and briars should not be permitted to choke out the grass, and all the grand old forest trees should not give way to corn and wheat. I have often wondered why our fathers did not preserve a clump of forest trees close by the house or barn to furnish shade or beautify the landscape in after years. I am sure such an attraction would be an addition to the home and give an added value to the homestead. To make our homes, rural or urban, attractive to our young folks, to interest them in improvement and management, their embellishment and endowment, is, in my opinion, one of the secrets of creating future home-owners. For no young man who has tasted of the sweets derived from exercising his faculties in the improvement and intelligent care of a thrifty and pleasant home, but will feel an impulse to own a home himself and look forward to the time when he will secure one for his own. Make home a melancholy place, keep kind words, good books and sunshine out of it, stuff pillows in the broken window panes, plow up the grass plat for a garden spot, cut down the shade tree and neglect the orchard, keep poor stock and turn the plows and harrows out to graze, make life a long drawn-out struggle against bad management and procrastination, and home will lose the charms it ought to have, the young people will leave it without a sensation of regret, and you can depend upon it they will not resort to farming for a living if they can obtain a livelihood in any other occupation. Our homes, like our lives, are largely what we make them, and what we make them will determine the estimation in which our children will regard them when they go out into the world.

Every farmer's boy should be encouraged to become the owner of a little tract of land and every boy in town would have his business vision enlarged by a controlling interest in a town lot on which trees and vines can be planted, for they would then be freeholders and part owners of the basis of prosperity in the commonwealth. Nothing gives to a boy a better early training than the ownership of a share of building association stock on which the dues are required to be paid at stated intervals, and a failure to practice punctuality, promptness and regularity in payment results in loss and trouble to the stockholder. These, then, are the thoughts I would impress: Private homes are the basis of public safety; the more individual homes the more interested defenders of our institutions; the more freeholders the more interested participants in the responsibilities of civil government. To make home-owners, make home an attractive place; send your children out from the old rooftree with fond memories and tender recollections of the old home. Encourage the boys in the early acquirement and ownership of property. Help them to become freeholders and give them a taste in the welfare of society. Put them on the road to success by giving them a taste of the dignity of invested rights in property. Fertilize the soil, clean up the waste places, beautify the landscape and adorn the house, and early associations, youthful experiences and personal knowledge of the results that come from industry and thrift will fill their minds with happy recollections of the homes of their fathers and inspire them to emulate the good example set by securing a home of their own as a source of happiness to their families and themselves, and a basis of security and stability to the State.

DOMESTIC ECONOMY.

BY MRS. WILLIAM KRELGH.

[Paper read before the Hendricks County Farmers' Institute.]

All economical questions are of prime importance. It is not so much the power of gaining as it is the faculty of retaining that makes the prosperous farmer and thrifty housewife successful. Most true is the statement that "no man is rich whose expenditures exceed his means, and no one is poor whose incomings exceed his outgoings."

Daily and hourly the manager of a household is following or breaking laws of domestic economy. Some women always find the best way of following laws imperceptibly, doing the right thing at the right time, with cognizance of the fact that all women can not do thus. That the same ability will perhaps come to her less favored sister after years of toil, and may perhaps never come.

The first point to be considered in economy is health. The true economist looks well to her stock in hand. She finds that she has so much health, so much strength, so much time, and she readily makes the deduction that the amount of work she accomplishes and the manner in which it is done depends largely on the manner in which she husbands her forces.

God gave us in most cases a perfectly healthy body. The mechanism is intricate and the organs delicate. Hence like any complicated machine it requires proper care. Without this protection, it becomes, like the poorly kept machine, useless and troublesome. The farmer's wife needs, above all things, perfect health. Yet how few appreciate it or regard it as one of the chief factors in success? Happily, physical culture is already gaining favor and we may expect stronger women.

In striving so earnestly for perfection in the numerous parts of housekeeping and home-making, the mother, ever solicitous for the health and happiness of others is too apt to neglect her own health. While carefully alloting time for the children's rest and play, make some arrangements for your own, oh, mothers! If you are literary, what a treat it will be to spend a little time each day with your favorite authors. If musical, why punish yourself with total abstinence from song. Uncover the piano lest your fingers forget their cunning. If fond of art, why need the picture on the easel remain untouched for days, weeks and months? Your children will rejoice to see you thus employed, and you will retain some of the accomplishments that made you so lovely in your husband's eyes.

I hear you answer, "No time; no time," and the murmur again, "More work; more work." Dear sister, the work will be just as heavy when you are worn out and tired forever. Therefore, when looking after ventilation, heat and sanitation, remember your own needs and save the physician's fees.

After noting the American's scarcity of time, it seems almost superfluous to urge its economy. It is our greatest treasure, and when it, our precious capital, is wasted, great is the loss. Time wasted is gone forever. We may sigh for the neglected moments, but the opportunity to employ them never comes again. The present and the future we can regard as precious trusts. Use well your time without flurry, and rest assured that though sometimes the "sweet bells are jangled," the verdict will be: "She hath done what she could."

I must speak of labor and labor-saving devices. Why do some women seem to find the longest way around the shortest way home? They do things, it seems, with a desire to make them as laborious as possible. We are already much behind our Yankee sisters in the employment of labor-saving machines. It is quite discouraging to hear what few inventions we have, so dreadfully censured. A prim old maid told me an egg-beater quite spoiled the consistency of the egg, and I had innocently eaten cake and pudding and thought them good. A precise old lady cast a disapproving look at my carpet-sweeper, and said it took all the nap off the carpet. A sixteenth century widow assured me that machine sewing was very poor indeed. We can hear over and over from women worn with years of labor, that washing machines are not satisfactory; that wringers wear the clothes; that carpet-stretchers tear the carpets, and on and on until we wonder if anything useful was ever invented for us. We may use all the inventions we have to lighten labor and still find enough to do.

Cooking remains, generally speaking, the occupation of women. One of the essentials to the health, and consequently the happiness of a household, is a well cooked food supply. Again we feel the onward march of science. Cooking is an art and must be studied. There may be talented cooks who almost from their infancy could make fine light bread and dainty omelettes, but like all genii, they are extremely rare. Perhaps in no other branch of economy is the field so wide. I speak, not so much of the bill of fare as the manner in which it is prepared. The menu is elaborate or scanty as the family circumstances will allow. What is furnished can be well cooked and daintily served. Healthy appetites will thus be satisfied.

Do not put any trust in that old superstition called "luck." See that the ingredients are put in in proper quantity and at the right time; that the fire is properly mended and tended; the dish well watched while cooking, and you will think less of "bad luck." Luck comes to the cook as it does to other people, simply in proportion to what she had earned.

True kitchen economy consists in preparing the food so that it will be both heathful and palatable. Take, for example, bread (most of us do not take it at least three times daily). Good light bread, when fresh, is healthful and delicious. A slight over-supply need be no source of worry. When it is a little stale, it makes nice toast. We can prepare it in the French way and fry it, or we can make nice puddings and dressing.

We think it dreadful that manufactured butter lowers the price of the home-made article, and we protest loudly against food adulteration. Yet with extreme mortification, we are compelled to believe the statement so frequently made by honest people that oleomargarine is much better than most of the butter found at country stores. It is but a step from kitchen to dairy. I recently read an article by a butter maker who said she had made "gilt edged " butter for years from common cows; that much as she loved the Jerseys, she would prefer a careful butter maker and ordinary cream to a poor dairy mistress and Jersey cream; that some women could and did make good butter under adverse circumstances, while some with every convenience made a complete failure. I heartily wish that all country women had a nice little dairy, with all modern conveniences, but it is seriously to be regretted that the results are often so poor. Butter making is so much written upon and the methods given so often that one is compelled to wonder if it is really ignorance or perversity. Money spent for farm papers, or indeed for any paper, will bear the highest rate of interest, if the advice contained is carefully studied.

Shall we dare to add poultry raising to our list of woman's duties? It is hard to define the tasks on a farm as "this is yours," or "this is mine," so imperceptibly do they merge into each other. In well regulated households, there is, or should be, coöperation, which is productive of good results and thus is truly "ours."

Some women have been very successful in this well paying industry, but rest assured that it is not the woman who relies on luck. It is the one who looks to the food supply of her chicks; keeps them supplied with pure water; furnishes clean houses; good dry earth for dust baths; when they are setting, gives them good eggs; in winter gives them a warm home, and a variety of egg-producing food. She does this and more, and if disease does invade her flock, she seeks the cause as well as relief. Careful attention to the details of poultry raising leaves little for bad luck to assail. We naturally hear the eager interrogation: "Does it pay?" Yes, poultry raising does pay.

As one grows enthusiastic discussing that subject which he understands, so the occupation which has proven lucrative gains new beauties and is a pleasant subject to the domestic economist. Ignorance will not prevent good results if you earnestly seek for knowledge. My ignorance was so dense and the results so good that there is hope even for the beginner. Pride almost tempts me to tell you how many dollars' worth of eggs I sold last year, besides receiving a large price for my chickens. But as there is such an unsettled feeling in the money market I am afraid some one might want to borrow it. So domestic economy forbids.

There are so many rules for housekeeping, so many "do so's" and so many dont's that one must have a memory for them alone if well versed in all. There are so many methods, and each thinks her own the best. I shall not question these, but the housekeeper who keeps everything up in good order and always "makes ends meet" is a brave general.

Men build houses, women make homes. I would advise no economy tending to lessen the beauty and comfort of country home life. While urging true prudence, I would plead for better country homes. While the farmer toils harder than almost any other worker, he has, as a rule, less of the comforts and conveniences of home. The reverse should be true. Mother and the girls are industrious, they go little, have access to no public library, literary society or reading room. Then why should they not have good books and periodicals? Let some of the beauties of art and literature find place in their minds. Let them have higher thoughts and lighter hearts. Remove good thoughts and instead of a vacuum you will have insignificant, perhaps pernicious ones. While striving to be like the virtuous woman painted in the Proverbs, do not keep the house at the expense of the home. When your fireside is deserted and the ever ready broom finds no longer the muddy tracks to sweep after the boys you really loved, it will be too late to provide the entertainment they now find in the city.

FARM LIFE AND ITS OPPORTUNITIES.

BY MISS GRACE ROBERTSON.

[Extracts from a paper read before the Clay County Farmers' Institute.]

Life's road is a rugged one, and no one can travel far on it without having to surmount difficulties, but while this is true there is a way of avoiding these grievances to a great extent. When one is absolutely master of his own actions, if he be so inclined, can glide round ravines and hills in his path, that were he subject to another's dictates, he should have to cross.

I hold no laborer, professional or otherwise, is so entirely independent as is the tiller of the soil. The physician is the people's servant, to be called when he is needed, and he must go regardless of self. The minister must depend on his parishioners for support and encouragement. The politician must submit to the dictates of his party. The lawyer looks to his clients for sustenance. The mechanic's work is at the mercy of the people. But the farmer is independent. He sows with the assurance of a harvest; he reaps with the assurance of a market, for the products of the farm are indispensable to mankind. We often say the farmer is dependent on the people for a market, but in reality the people are dependent on the farmer for a living. To be sure, we sometimes think our harvests are not as abundant nor our markets as good as they should be, but we are natural grumblers.

In the present financial depression, who is the least effected? The laboring man can not get work, hence, his family suffers; the contractors can not get orders for work, hence, the closing of business; the professional men can not be paid for work, hence, their work is also stagnant; the farmer can not get large prices for what he has to sell, hence, he, also, is dissatisfied, but he has a living, inasmuch as his produce is, to a great extent, what he lives on. And the surplus he has to sell will provide the rest, although he sells at a sacrifice, his family does not suffer. He is never out of work, for, no matter how other people are situated, whether they are employed or not, the farmer as a man of his own resources, toils on in his noble occupation, feeding not only his own family, but multitudes besides.

Then, being independent and self-supporting, why is not the farmer and his family the most happy of all creatures? Is it because his work is not pleasant? If it isn't pleasant, why isn't it? It is simply because he does not take pleasure in it. He has bounteous nature all around him, with her ever-changeful, never-failing beauty; he has the sweet, pure, refreshing air that can be felt only in the country; he can see the seed he sows sprout, grow, mature and ripen, through all the year; in all his work he can see the works of God blending with his own efforts to produce his harvests. If he cultivate an eye for the beautiful, if he cultivate a thankful, reverent spirit, while he cultivates the soil, his work surely will be pleasant.

Is it because his time is so occupied with outdoor labor he has not leisure to enjoy social or other amusements? This is the very bane of farm life. There are so many avenues for profitable employment on the farm, that the farmer's time is so occupied that he has not time nor physical ability to indulge in recreation during the crop season. This is a common mistake, for it is a mistake to undertake the amount of work that will tax all the energies, both physical and mental, to such an extent. If farmers would not attempt so much, if they would do only what they can do well, and do well what they do do, put in some of the time they expend in doing "big things," in looking after the "little," thus saving little wastes, and save some time for profitable recreation, this greatest objection to farm life would almost vanish.

Is it because we have not social advantages? What is society, that we speak of it in such mysterious terms? Is it a form of extravagant dress and a set code of manners, that no one in society circles dare to violate? If to be accepted as a member of such circles is social advantage, then we are fortunate who have no such advantages. For their vanity and formalities often take the place of intelligence. Christianity, refinement and intellect should be the true basis of society, and these are as predominate in country life as in city life; but so long as the farmer looks upon his station as being inferior, so long as he considers his work beneath his dignity, so long as he thinks himself below his brethren in other fields of knowledge and work, just that long he will be considered so, and he will be so. But let him come to the front, let him vindicate his station and show to the world that he is capable of holding a prominent place in society, business and the various fields of knowledge, and the place will be opened for him and he will be welcomed to it.

There is one thing more before the farmer's life can be completed. Whittier, while musing over boyhood days on the farm, expressed it so vividly that I will quote from him:

"A farmer's son
Proud of field lore and harvest craft and feeling
All their fine possibilities, how rich
And restful even poverty and toil
Becomes when beauty, harmony and love
Sit at their humble hearth as angels sat
At evening in the patriarch's tent,
When man makes labor noble."

And how wisely he shows how all efforts are vain where this one requisite is lacking, in the words:

"Still I know
Too well, this picture has another side,
How wearily the grind of toil goes on
Where love is wanting, how the eye and ear
And heart are starved amidst the plentitude
Of nature, and how hard and colorless
Is life without an atmosphere."

With surroundings so pleasant, with spirit so independent, with nature so abundant, with atmosphere so invigorating, "with beauty, art, taste, culture and books to make his hour of leisure richer than a life of fourscore to the barons of old times," in fact, with every thing to elevate and impel the mind to action in the higher plains of thought and refinement, what are the opportunities of those who live on the farm? John Ruskin has said, "It is only by thought that labor can be made happy, and only by labor that thought can be made happy, and the two can not be separated with impunity." Then think while we labor, and labor while we think, and both thought and labor will be happy, and both can accomplish great results. "Man wants not charity, but opportunity; not action from without, but development from within," says Goodale.

We all have the opportunity to develop, and not only to develop, but to cultivate the finer qualities and higher motives within our natures by spending our leisure moments in pursuing some leisure subject. By spending our winter evenings in company with good authors, men and women of pure and noble principle and sound, wise reasoning, instead of indulging in gayety and frivolity, one can become a proficient scholar in any branch of knowledge.

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And such knowledge as this is as essential in farm life as in any other, for it is by such knowledge that our ideas are broadened, our mind developed, our resources expanded, and our whole life elevated and purified. It is an indisputable fact that men who were brought up on the farm, and who wrought out their own education on the old but splendid maxim, "no excellence without labor," are the men who have done most for themselves and for humanity.

George Washington, the father of our country, and at the mention of whose name every American heart thrills with pride and love, spent the greater part of his life in agricultural pursuits.

Major Benjamin Lincoln and General John Stark, whose heroic deeds in the Revolution have won for them everlasting fame, were sturdy farmers.

Daniel Boone, the noted pioneer, spent many years on the farm.

Israel Putnam left the plow standing in the furrow to fly to the rescue of his country.

Thomas Jefferson, who penned the "Declaration of Independence," died on his farm near Monticello.

Abraham Lincoln, our country's greatest martyr and humanity's greatest benfactor, spent his young days as a farm laborer.

Robert Burns, nature's own poet, was inspired to write verses that are immortal, while plowing in the field.

Whittier's young days were spent in following the pursuits of the farm, and there are hundreds of others no less worthy than those named.

The quiet simple manner of farm life not only affords an opportunity but is an incentive to draw out, as it were, the "true inwardness" of man.

I recently read an article in which was the statement that country women aged so much faster than their city sisters, and gave as a reason for this that their life was such a monotonous round of tiresome duties. This, we must admit, is true in many instances, but if we would only open our eyes and ears to the beauties all around us; the songs of the happy birds in the dooryard; the works of our Heavenly Father so sweetly and slyly and yet so grandly revealed in every tiny rosebud or grass blade; if we would embrace the opportunity of acquainting ourselves with the best thoughts of the best poets and writers of all ages, our humble duties could not make our lives rude nor monotonous.

Then we farmer folks are in no way debarred from colleges and universities, of which our land is full. We can have social entertainments and circles, churches and Sunday schools just the same as our city brothers and sisters are doing; and while we have not beautiful stone pavements on which to walk the few squares, we can enjoy a pleasant drive behind our own splendid horses in our own conveyance, a luxury for which our city friends would pay an extortionate price.

SHOULD A FARMER'S WIFE RAISE FLOWERS?

BY MRS. J. J. WHEELER, ROME, IND.

[Extract from a paper read before the Perry County Farmers' Institute.]

In answer to this question, I would say: Certainly, if she wishes to do so—not otherwise.

For convenience in treating the subject, we will divide womankind into two classes: Those that love flowers, and those that are indifferent or that have only an eye for the useful, and to the last I would say, don't add to your list of duties.

If it is not a labor of love, let it alone, for it will only prove an added burden

The term "farmer's wife" has become synonymous with toil and overwork, and cultivating such a useless fancy as floriculture is regarded as a useless expenditure of time and strength that "will not pay."

We know that for the wealthy to raise flowers has become a matter of course in this day and age, and their failure to do so is considered a lack of taste and refinement, but for the farmer's wife, with limited means, who has to "look well to the ways of her household" if she would fulfill the commands of holy writ, the question is worthy of careful, if not prayerful. consideration.

She should count well the cost of the loss of time to be spent in planting, transplanting and caring for the plants that are for the mutual pleasure of the members of the family.

"Will it pay?" is the ever recurrent question that greets the woman lover of flowers, if the household tasks are not completed, and when, leaving flowers out of the question, does that happy day ever come?

When can the mother say, I have no sewing, mending, cooking or cleaning, and when, with throbbing body and weariest limbs, she must, from want of strength, sit down, and with the picture of her shortcomings before her eyes, and the enumeration of tasks yet undone before her mental vision, must these things be her rest, instead of the sweet promise of bud and flower, which the possession of a few plants brings.

I have known some of the wealthy to say, I don't see how she ever has time to even look at a flower, let alone to cultivate and keep them for pleasure.

This is true. We have no time to call our own, for there is no limit to the amount of work desired, if in the line of usefulness.

But we too must apply the rule "Will it pay?" Is it justice to ourselves and our children that all the poetry of life should be banished from our pathway?

That a condition confronts us on this subject is as true as that of the financial one, and while a variety of opinions prevail among financiers, we hear of only two sides, opposition and indifference; and while we cannot command the repeal of the opposing forces, as did our Chief Executive in the Sherman Bill, it behooves us to plead our cause with courage, believing that justice will crown our efforts with success.

The idèas of the male members of the family usually are that the garden—or rather than miss the cornfield, can afford ample scope for her agricultural efforts.

But these labors, however useful, make no provision for the dull days of autumn, when the monotony of our household tasks are so wearing and wearying on the farmer's wife. Again, will it pay?

From the study of hygiene we learn that a change of employment gives rest by using a different set of muscles, and the student, by a change of subjects in like manner, recuperates the mind. Just so, visions of the beauties of early spring, and the mature bloom of midsummer are recalled by our window garden, and are a solace and rest in gloomy winter.

But I have only been presenting the selfish side, or the one pleasing to the feminine heart. The highest duty of the mother, next to teaching the "beauties of holiness," is the necessity of purity of life and character, and we have the example of the One who said, "Consider the lilies of the field, they toil not, neither do they spin."

With all the associations of flowers in our homes, our children are connected by the closest ties. They are the helpers in our labors and the sharers in our joys, and it is here that we can train their intellects in the paths of science without wearying them with lessons that they can not comprehend or appreciate. But, mothers, flowers have a holier mission to perform than to minister to the pleasure of the present. The blighted flower bed and the faded nosegay, with their pleasant odors, will be memories treasured in the future, and who can say that mothers' teachings will not be a shield from the tempters' snares, and foes to their besetting sins, when they have gone from our care?

But a new era is opening for us. Inventors of to-day are giving us labor-saving implements, and the philanthropic spirit that is moving the press to proclaim, in story and in rhyme, the condition of over-worked women on the farm; when they become sufficiently enlightened by these, may we not hope that they will cheerfully accord to us the right to recreation, that we deserve. With this hope in our hearts, we can say, with the poet—

"Let us, then, be up and doing,
With a heart for any fate,
Still achieving, still pursuing,
Learn to labor and to wait."

FLOWERS—THEIR INFLUENCE IN THE HOME.

BY MISS BINA CAMPBELL, WILLSHIRE, OHIO.

[Abstract of a paper read before the Adams County Farmers' Institute.]

There certainly never was a time when the love of flowers was more general than at the present time. The flower shows and horticultural societies are frequently inviting public attention to the beautiful ornaments of the garden or conservatory. Many feel somewhat disposed to listen to any information respecting them. To those who value flowers in the home, it is a matter of congratulation that even the wild flowers are now regarded with so much interest.

There is something in the love of any portion of nature which is calculated to produce kindly emotions in the bosom, when residing near to us. It is indeed a gift of blessings to him who owns it. It serves to identify us with the happiness of the nature to which we belong, to give us an interest in every species of being that surround us, and amid the hours of curiosity and delight, to awaken those latent sympathies from which all moral and intellectual greatness rises.

And well may we, therefore, when we see the child treasuring his daisies and cowslips, or behold the lady teaching the jessamine's sweet wreath to robe her bower in silver, well may we welcome the sight.

It is an indication of a perception of beauty, of awaked love of nature, which will not be satisfied with the object before it, but will comprise the wonders and beauties of the earth, and bear with it an intellectual joy and improvement.

There is a charm in the thought that the pleasure derived from wild flowers and home flowers lies open to the youngest and poorest of mankind. Listen, birds are the poor man's music, and we may observe that flowers are the poor man's poetry. For him, as for all, they are scattered unsparingly over the lap of earth; smiling in the home and among the leafy wood; fringing the field-path, glowing in the sunny regions of the world, or raising their ever welcome heads over the dreariest snows. How well those beautiful colors are adapted for the human being. One is filled with pleasure and unbounded gratitude to Him who has painted the world with delight.

"And thus with many feelings, many thoughts,
We make a meditative joy and find
Religious meanings in the forms of nature."

Have you not, during your younger days, hunted with hearts brimfull of enjoyment, along the mossy banks of some quiet stream, beneath the smiling sun of Heaven, for the white and blue violets? We were almost too busy for a selection, gathering them as they lay scattered plentifully in our pathway.

Where is the heart to which the flowers do not speak of childhood? Where is he to whom its odor does not breathe of holiday seasons and healthful joy?

How well can they who have spent their childhood days in the country, and knew the delights of a little flower-bed or flower-pot of their own, share in the feelings with the beauties of a garden plot, or an indoor conservatory.

"And thriving plants were there, though not of price,
No puny children of a foreign soil,
But hardy natives of our own dear earth,
From many a field, and brook and streamlet side;
Transplanted, carefully, with adhering mould,
And blossomed for our own dear home."

Did you ever in all your wanderings come across a neglected garden, where, perhaps, many years prior our forefathers dwelt, the house all gone, and still "where many a garden flower grows wild," we are sure to find the pansy there. How gay it beams forth in early spring.

"Yet, marked I, where the bolt of Cupid's fell,
It fell upon a little western flower,
Before milkwhite, now purple with Love's wound.
The maidens call it Love-in-Idleness,"

Have you not heard the joyful song of the farmer's boy? I will dare say he carries more of that herb called Heartsease in his bosom, and leads a merrier life than he that is clothed in silk and purple.

There's Pansy, that's for thought, and as Ben Johnson says:

"Now the shining meads
Do boast the pansy, lily and the rose
And every flower does laugh as zephyrs blow."

A rose by the home and an apple's sweet blossom. How beautiful! They are good for the sick and sound, both for the living and the dead, and fit to crown, as with a garland, the heads of the living. We use them from the cradle to the grave.

The rosemary overtoppeth all the flowers in the home, boasting man's rule. It helpeth the brain and strengtheneth the memory and affects the heart. Let this flower of men, ensign of your wisdom, love and loyalty be carried, not only in your hands, but in your hearts.

What an even beautiful appearance always presented by the myrtle clinging to the walls of the house. It is a chosen emblem of peace and gives living freshness to the soul.

We must mention the sweet-williams and honeysuckles twining about the bushes; roses, lilies and a hundred others blooming to remind us of the change of seasons, from the cold and bleak winter days to the more mild ones, where living freshness overspreads the face of the earth.

It tells us of the throwing off of the white robes brought about by the cold Arctic winds, and donning the more beautiful one of green.

"All that's bright must fade" has been sung over a withered flower, once of sweet promise, and then, as the brightness fades from the land, it beams forth again in the home in all its glory.

How gladly does the lover of nature welcome May, with all its profusion of flowers, with their gay and soft tints. The gentle winds are constantly wafting their sweet perfume all about us to make life cheery and happy. I believe there is no human being by whom, at some time or other, the love of nature has not been experienced as it went bounding through our veins. We commence life with it. In our childhood the fields, the flowers, all the features of nature animate and cheer us—the tulip is a treasure, the flowering daisies, dahlias, fuchsias and geraniums are a delight.

Too often as we advance in life, compelled to spend our days far away from rural scenes and can no longer witness the beauties of nature, this love seems almost forgotten. Then this same flower becomes a joy and a blessing to us. The home is a thousand times more bright and cheery. A home beautified with nature's choicest gems, can not fall short of making it all the more pleasant to us. Our home is what we make it, and if it fails to have some of the beauties of nature bestowed there, can it be what it should be?

Home is the dearest place on earth, and it becomes all the more enriching to the soul when filled with the sunshine of heaven and yielding the most delicious perfumes. Flowers have their effect upon mankind by attracting us to them. Attractions at home are blessings to the boys and girls. Many a young man has sought the loafing places of the city when nature's gem of our garden, the rose, might have saved him. It need not be a rich home to have these attractions, for flowers are not expensive. Entering a home filled with flowers—what a beautiful sight! It can well be compared to a paradise on earth. We love to linger there amid the flowers; they sing a song of sweetness to us. We love to watch the little rose open its bosom to receive the pleasant beams of the sun's glory, rejoicing, as it were, in calm rapture, diffusing a sweet fragrance, standing peacefully and lovingly in the midst of other flowers around about it, all in like manner opening their bosoms to receive the light of the sun.

The love of flowers is almost universal. Few, indeed, are the people even among the most debased, who do not sometimes stop to admire some exquisite blossom that speaks to them of better things and inspires for the moment, at least, a desire to live a purer life. Flowers never irritate, are never selfish, never revengeful, opening out to the beautiful golden sunlight, their hearts all aglow with the warmth of the rays which they seem to have caught and imprisoned, they seem sometimes almost ready to burst into song. And perhaps if our ears were better attuned to the vibrations in that finer atmosphere, which science says exists, but is not perceivable by the physical senses, we should translate the glorious hues of the myriad of blossoms that crown nature's greenery with glory into melody. Flowers always carry with them a message that speaks to the heart. They seem a promise of an hereafter, full of delight and a glory beyond our power to realize or express. Insensibly they lift the thought away from suffering into forgetfulness of one's self, and a real enjoyment of a glorious gift of nature. Some one has said, "Who has not read Dante has not completed his education." I think it can be as truthfully said of those who do not know or care for flowers, that they can never be truly happy, because there is nothing, not even the sweetest and purest music, which so subdues the passions, so elevates and refines the character, as the knowledge and love of flowers. Surely one of the roads to heaven is through a flower garden.

Imagine what a dreary world this would be without them, and how a little care repays us for all the time which we give them. It is surprising to see how dreary and cheerless and barren the dooryards of many farmers are, when they might be bright and beautiful with flowers of every kind. It may be true that some farmers do not have a "minute's time" to spend in caring for flowers, and the work of preparing the beds is too heavy for the women, but it is more often the result of indifference on the part of those who deem it a waste of time to raise flowers, and a "fooling away of money" to buy flower seeds. If the boys manifest any desire to cultivate flowers, they are scolded and ridiculed and told they will never amount to anything, and the girls are told they might be in better business.

A pronounced love of flowers is a hopeful sign in a boy. Encourage it in every way. It would be much safer to trust a boy who would spend his money for a buttonhole bouquet, than to trust one whose dimes went for cigarettes. A love for flowers means that a boy's mind is pure and that he has manly instincts and that you may keep him pure if you will.

Encourage the boys to cultivate flowers and study all that is beautiful in nature. Here are some of things poets and great men have said of flowers: Mrs. Browning says:

"Earth's crammed with heaven, and every common bush afire with God; every natural flower that grows on earth, implies a flower upon the spiritual side." John Adams said: "I should prefer the delights of a garden to the dominion of a world."

The gentle poet, Wordsworth, wrote:

"Thanks to the human heart by which we live,
Thanks to its tenderness, joys and fears.
To me the meanest flower that blows can give
Thoughts that do often lie too deep for tears."

Beecher was an enthusiast over flowers as he shows by this: "Flowers are the grandest things God ever made without putting an immortal soul into them. Blessed be the man who really loves flowers! loves them for their own sake, for their beauty, their associations, the joy they have always given, and always will give, so that he would sit down among them as friends and companions if there was not another creature on earth to admire or praise them."

Flowers beautify the earth as stars are set gems in the heavens. A home without flowers is likened to an earth without sunshine. Can we then banish them from the home? I am an earnest supporter of flowers all about us, in our homes and out of them. They tend to lift us up and up to a higher plane of civilization. They contain brilliant hopes, woven in tissues of golden light, beaming forth with tender wishes for men who may have wandered from the beauties of earth.

They are not alone in summer's green emblazoned field, but—

"In the cottage of the rudest peasant,
In ancestral homes whose crumbling towers,
Speaking of the past unto the present,
Tell us of the ancient game of flowers."

And also—

"Full many a flower is born to blush unseen,
And waste its sweetness on the desert air."

Ah! may some of its sweetness be wasted on the desert homes; may it be an emblem of goodness, of affection, of purity, and an emblem of that bright and better land to come.

"Sweet flowers! the choicest rarest gift
Dame Nature has bestowed
Upon mankind to banish care
And ease life's heavy load.

Their fragrance, sweet, pervades the air,
Dispelling care and gloom,
And bringing us content and rest,
Sweet as their own perfume.

Too oft, of little worth we're apt
Most priceless gifts to hold;
Too oft we're not contented quite,
With blessings manifold.

What more than flowers can cheer the home
What else can fill the place
Of these, our fairest household pets,
Emblems of beauty and grace?

Then give the flowers a place in home,
And let them shed good cheer
Around your hearth, and they will yield
Rich dividends each year."

HOME INFLUENCE.

BY MARY WENDLING LANE, BAINBRIDGE.

[Read before the Putnam County Farmers' Institute.]

Home influence, home example and home endearments should first be made what they ought to be, and then upheld in all their preëminence as vital forces in the souls of men. Where they are either abolished or neglected, we are conspiring against the highest interests of society. We can never clear our streets of youthful depredators, if ill-conditioned homes be constantly sending forth new criminals. The home has been called "a little world." We are there trained for acting the part which shall be allotted to us upon a wider arena. Obedience to law, submission to authority, sympathy with suffering, affection, duty, hope and fear are all brought into vivid play, and it is not difficult for an observant eye to predict how each young inmate will act in public life. Selfishness or generosity, dishonesty or high-toned honor, all find their place in the little world of home in training for the wider platform of society.

Children when well trained and possess the qualities of affection and respect for their parents, become the beautiful staffs on which parents would lean when sorrow comes—when old age comes. Home training, home memories, and home inspirations are the hope of our youth; these are the qualities that constitute their manhood. The ambition to be graceful and attractive, and to take an interest in the home for ones husband's sake, and ones children's sake, instead of making home simply the stopping place of a night, and valuing home influence, is the holiest of all woman's instincts. It is almost universally realized that housekeeping and home-making require the highest attributes of mind and character, and in the complicated duties of domestic women there is scarcely any knowledge of the arts, science and literature that can come amiss It is generally conceded that the wife and mother is the real maker of home, but the father or brother can aid in making the home happy or otherwise. With their means and ability they can make the home comforts and surroundings pleasant. Employment is the surest means of happiness and success. Children should be taught to be self-supporting and self-reliant—our girls then would not be forced to marry simply for a home. Constant occupation saves many a boy from ruin. Children should be trained from infancy. Early training will form habits, habits become second nature. A nation is just what its homes make it. Example is one of the most potent of instructors. Good advice has its weight, but unless accompanied with good example it has but small influence. Whatever children see, they unconsciously imitate. Hence the examples set in our homes have a great influence in forming the character of our future men and women. Public opinion itself is for the most part the outgrowth of the home. The love which was kindled in hearts under the old home roof, and the aspiration born there, are the propelling powers of life. This home influence lasts as nothing else in this world lasts, for it enters into the mind itself, it haunts the soul in memory when those from whom it came are far away, or have been for years silent in the grave.

Let it be our aim to make home so much more to our loved ones, than any external attraction, that when we sleep in silence it shall be among their sweetest recollections.

ENSILAGE AND THE SILO.

THE SILO.

BY MRS. CYNTHIA A. FLEMING, TABOR.

[Read at Madison and Delaware Counties Farmers' Institutes.]

The question of silage is engaging the minds of many of our institute workers and dairymen, and I am glad it is so, and hope the time is not far distant when all dairymen, as well as the common farmer, will have a silo for every corncrib they have on their farm. Some of you may think that a very broad wish; if you do, that is just what I want you to think, and keep on thinking until you put such thoughts to a practical test. Not so much theory, and more practice, is what we all need; or I will modify that by saying, the theory may be all right, providing it is followed up by practice. When we think of the books that have been written—the published articles, the practical experiments, that have been made on this question of winter food for our stock, we can but wonder why so few silos are built in our country. The more progressive farmers fully understand that good grass on the farm is essential. There is no food that will take the place of it in producing milk and butter, and adding growth to young stock; but in this latitude, with only six months of such pasture, the next thing to be done is to find the substitute for it during the other six months of the year.

I will say it has been found, and the little word "silo" covers the whole subject. It is such a very little word, and yet how few of us fully understand and appreciate its full meaning. There can be no question about the superiority of green food over dry. That there is no ration equal to ensilage, as the principal or foundation food, has been clearly demonstrated by those who have had experience in feeding it. Who of us truly realize the value of the succulent food the silo supplies us? When we see the rich, succulent food our blue-grass furnishes our stock in summer, and then see the dry food as used by many during the winter, we can not help seeing that it is a very poor substitute. There are succulent properties in the green corn when put into the silo that are lost during the process of drying, and which can not be restored by adding water or anything else.

Suppose a dessert of apples or peaches were set before you that were kept perfectly by canning, with another dessert of the same kind of fruit dried sufficiently to preserve it, which of the two would every one of you choose to eat and relish most? Need I say? I think not. Just so it is with dry food, especially cut fodders, as many use it now. About 80 per cent. of green cornstalks and grass is largely juice, but when dried it takes about ten pounds to make one. The good results obtained by feeding silage are due largely to the succulent properties of the silage that go into the system and are easily digested and assimilated, having the same effect on the quality and yield of milk that grass has in the summer. Some may think silage only a dairy food, as it is used by most dairymen, but such is not the case. In December, 1892, we weighed twelve head of steers, then weighed the silage and hay, fed one month and weighed again. We found they had made an average gain of twelve pounds. This was the first month silage was fed. In January, 1893, as the weather became colder, we increased the silage one-half and hay one-third, weighed again and found an average gain of thirty-two and one-twelfth pounds—the cost of average gain being about two cents per pound. Our farm horses, while idle during the winter, keep in good condition on the hay; colts make a fine growth on it, sheep do splendid, especially during March and April; when fed to milch cows, where butter is the object, we add corn meal, bran or shorts.

This is their morning and night rations, with mixed clover and timothy hay, at noon sometimes corn fodder to browse on through the day. I have no trouble in getting twenty-five cents a pound for my butter the year round.

Almost every experiment station has sent out, during the past two or three years, a list of rations, so that no one need be at a loss to arrange a balanced ration, as each individual must be governed, to some extent, by his surrounding condition—if he be a farmer and raises all his food, his list will be different to the one who buys all his food.

I will give you a ration, taken from "Hord's Dairyman," said to be for a good sized, ordinary milch cow: Thirty pounds ensilage, seven pounds bran, ten pounds timothy hay, two pounds oil meal, six pounds oat straw.

Here is one other, I take from "Country Gentleman," said to be for a butter cow: Ten pounds cut clover hay, six pounds wheat bran, eight pounds cotton-seed hulls, four pounds cotton-seed meal.

When feeding for butter those articles are added to the silage that produce butter fats, and when feeding for growth add that which will produce muscle, bone and fat. And right here is where I am afraid so many of us make a mistake. We do not have the proper knowledge of the relative value of the different kinds of food we handle. We should have an object in feeding beyond that of merely taking our stock through the winter. We should set a mark and then aim to reach it. How often we hear a farmer say his stock is passing through the winter finely. What are we to understand by that? Is he getting a greater amount of butter from the same amount of milk than before? If so, why? And is his young stock making a better growth? If so, why are they, and does it require less labor to feed the stock? Are these the ideas he wishes to convey by the above expression? We hope it is. Every farmer should know just what every pound of beef or butter costs him, as well as every pound of gain on his young stock, for it is by this means alone that he can secure satisfactory results. Judgment, thought and skill must be mixed in plentifully with every feed given his stock. Profits on any kind of investment depend on the conditions under which it is produced. Some claim that the silo costs too much to build one and that silage is a costly food. I will therefore give you our experience in building one. We thought to commence with a small one which will hold a little over fifty tons. Our barn being one of the large, roomy, old style log barns, with strong sheds added to each side, we decided to build one silo in the northwest corner. The floor was removed and the earth leveled down about one foot. They then went to the woods, cut saplings, dressed them down to about 2x4 inches, set them two feet apart inside the sill of the shed, bracing all firmly to the logs of the barn with cross pieces, put on a double wall of three-quarter oak plank, then lathed and cemented—the walls one half inch, the bottom one inch—and when finished was 20 feet long, 11 feet wide and 13 feet deep, with a capacity of about 52 tons, costing us just $20, and it is keeping the silage as perfect as if we had spent $100 in building one. Many differ in regard to what it costs to fill a silo; some say as low as 75 cents per ton, others $2. In the fall of 1892 ours cost us, including the cost of building the silo and cultivating the crop, $1.14, or about three-fifths of a cent per pound.

This last fall our corn crop was splendid and the filling of the silo such an easy matter, comparatively speaking, we did not take the time to calculate the cost. It required but two days' labor, which we consider quite an item. To show you what I mean by that, I will give you an object lesson that I view while sitting by the window writing. I see a neighbor shucking out corn fodder in his stock yard, so let's see what that means: First, he cut the corn, put it in shock, tied it up, then when ready for use he untied, loaded on the sled, hauled to the stock yard, unloaded, set it up against the fence, then shucked it out, threw the corn into the wagon bed, hauled to the crib, unloaded again, then put it into the basket, carried it to his stock; then went around to drag out and scatter the fodder for his stock to browse on through the day, and part of the time almost zero weather. Well, we truly feel sorry for such, as only silage feeders really can, for with all the extra labor he has an inferior food as compared with other that he might have.

As for silage being a costly food, we find it to be a mistake. It did not take quite four acres of corn to fill ours, and we commenced feeding December 1st, and have been feeding six head of horses, thirteen head of cattle and thirty-four head of sheep with hay and a very little corn, and will have plenty until grass comes in the spring. The same steers fed last winter made an average gain of twenty-four pounds per month this winter.

Now, I would like to see the farmer that could take the dry corn and fodder raised on the four acres and feed the same stock through the winter with the same results that we have obtained by feeding it green. I do not think it can be done; I know it can't.

Now, how many of my readers will build a silo next fall? There are two classes who should have silos, the farmers who are becoming aged and feel the weight of years stealing on, and the younger class of farmers who do not like to work. The silo is their friend in both cases, and yet there is another class, the last but not least, by any means, the farmers' wives. All who make butter should never cease urging their husbands to build a silo for them. You need have no more white butter that needs coloring, nor trouble with your butter coming when you churn. Happy is the farmer's wife who has a few good Jersey cows and good silage to feed them, and happy will be the husband that provides them for her.

SILOS AND SILAGE.

BY W. B. STEVENS, FREDERICKSBURG, IND.

[Paper read before the Washington County Farmers' Institute.]

A silo is an air-tight building in which to preserve green fodders.

Silage is the green fodder after being put in the silo.

Ensilage is the act of putting the green fodder in the silo.

There has been quite a revolution wrought in the construction of the silo in the last few years. The one of stone and concrete has given way to the more economical one of wood.

The modern silo is no longer an edifice that none but the wealthiest farmers and dairymen can afford to build, but it is in the reach of every farmer and dairyman. Stone and all metals are good conductors of heat and cold; hence their inferiority for silo building.

There are several different forms in which the wood silos are built. The square, the round and the rectangular. The square and rectangular are the best and more economical for the general farmer to build.

The wood silo is no more costly than a good wheat garner of equal capacity as it needs no bottom but the earth and no top.

There is no set rule for silo building. The main idea is the exclusion of the air, and we may use our own plan to accomplish this object. I shall, in a general way, give mode of construction, but each individual may alter to suit his purpose.

Place silo in the barn where it will be most convenient to fill and feed from. If surface of ground is level, would simply trench for sills; fill trench with small stones to give firmer bed for sills. Sills six by eight inches may be laid on these stones and halved together at the corners. Use two by six inch or two by eight inch studs, set from one and one-half to two feet apart from center to center. Arrange corner studs so the plank forming the wall may extend through and form a tie. Use the double or single wall. Where double wall is used, tarred paper should be placed between to prevent possibility of air coming in. The single wall has the preference, as it will dry out much quicker and will be more lasting. Coal tar should be used on sills and should be poured along edge of foundation, as rats and mice will not bother where it is. Cut windows in one side as the building is being done. The windows should be three and one-half to four feet long and three to four feet apart; should place them between two studding, set two feet apart. These windows should be in sections (or single boards), and slipped in like a garner door. After silo walls are completed, thoroughly paint with coal tar, which is the only safe paint to use. Take a plank one by twelve inches and dress off both inside edges, and set up perpendicular in each corner, and fill in behind with sawdust or sand. This prevents air from coming in at corners, also prevents square corner, and silage will settle much better. After all is done, dig up the dirt in the center of silo and throw up on the walls about one foot, smoothing nicely and making it kettle shape in the bottom. This serves two purposes—concentrates weight in center and prevents air from entering under sills.

The kind of corn to be put in the silo should be determined by the kind of stock to which the silage is to be fed. But it is best to plant in the usual way and the kind that will make the most forage for amount of grain. Do not sacrifice quality for quantity. Energy should be concentrated and by so doing two tons can be grown where one ton was formerly raised. From fifteen to twenty-five tons can be produced per acre, owing to condition of land and amount of tillage received.

Corn should not be cut until mature, as this will give comparatively sweet silage. At maturity nature's work is complete, and if man's ingenuity can step in at this stage and preserve it in its succulent and matured form, then a very important step in a better system of feeding has been gained. My plan is to remove all ears before going into silo, then use cotton seed meal to balance ration. All work should be thoroughly and wisely planned before the work of filling the silo is begun. Take no step in the wrong direction. Arrange so that corn shall be elevated but once, and that is from the ground to the wagon. The corn should be put in silo as soon as possible after it has been cut down in the field.

A corn harvester can be used, and by so doing less hands are needed, as one man can do the work of four. The corn is thrown in gavels and the teams follow behind and deliver to the cutter, which should be rigged with a good carrier to deliver corn in center of silo. One-half inch is the most practical length to cut the silage. Use a large cutter, and from practical experience I would say that steam is the better and cheaper power for running the cutter, and ensilaging comes at the time of year when wheat threshing is completed and an engine and engineer can be hired from $2 to $3 per day. The work should be rushed from beginning to completion. Last season I put in 160 tons in one and three-fourths days with a corps of twelve hands and four teams, and think this season I can do the same work with a less number of men. A man in the silo when filling is not needed when a distributor is used. When silo is filled wait a day or two for imprisoned air to escape, then level off on top and lay tarred paper on top and throw some cut straw or other light material to hold the paper to its place If the tarred paper is not handy use some green substance, or straw and chaff well watered to form a mold on top, so that air can not enter from above. No other weight than this cover is necessary.

Some use no covering but depend on a few inches of silage to mold and form a crust that is impervious to air. The amount spoiled on top when not covered varies from four to eighteen inches. The condition of corn, when cut, determining the amount spoiled Where a good covering is used, there is practically no waste. The silage will heat in twelve to twenty-four hours, and will get very warm. This heating is very essential, as in canning fruit. By heating the animal microbe, or bacteria of fermentation, is killed, and if no air gets in to bring new germs then the silage will be preserved for an indefinite length of time, hence the importance of air-tight walls. It will take from four to six weeks for the silage to heat up and return to its normal temperature, which is 80°. Silage was formerly looked upon as suitable only for dairy cows But it is now fed to all stock on the farm with equally good results.

There is no one food that is a complete ration, but clover silage comes the nearest of all others, and to mix clover and corn silage we have a complete ration. One that is not only a maintenance ration, but one that will more than supply the waste matter of the body, so hence will lay up fat and muscle. Corn and clover silage is safe to feed to all animals, and their is no kind of stock upon the farm but what will eat it with avidity. Due discretion should be used until the animal gets on full feed.

Prof. Shaw, of Ontario Experimental Station, found that it was not safe to feed steers for a period of four months on corn silage and corn meal alone, but was better to give some dry material in connection, such as hay, shucks or dry fodder.

We can very easily see from a chemical standpoint, as well as from a practical one, that corn silage and corn meal alone, is an improper ration. Corn meal, when wet, will ferment, and a great quantity of wet silage and one gallon of corn meal taken into the stomach alone will cause fermentation that will generate a gas that may burst the walls of the stomach. Now had cotton seed meal, oil meal, or mill feed been used, instead of the corn meal, then the result would have been otherwise.

It was the repeatedly feeding of the ration of corn meal and silage for so long without any change that caused bad results. We occasionally hear of silage killing stock, but after investigation we find it is not the true principle of ensilaging fodders that is responsible for their loss, but that some foreign substance that within itself is destructive, that was put in with the corn at the time of filling. Such as ergot or smut. This is one thing that can not be looked after too much. We should go over our fields two or three times each season, after the corn tassels, and remove every trace of ergot or smut, and destroy, by burning, as there are innumerable numbers of little spores that may damage good corn for next season. We have fed corn silage to all kinds of stock for the last few years, and have never had a sick animal from its feeding.

Fed forty-three horses and mules this winter with good results. Also have fed steers for market for last two years. Shall give in brief my results for first year:

Pasture of eight steers two months	$16 00
Eight steers of 860 pounds at twenty dollars each	160 00
Two and one-half acres of corn, cost to raise and put in silos	15 00
One and one-half tons of corn meal	22 00
Three loads of fodder	3 00
One-half ton of poor hay	3 00
Proportional cost of silo	3 00
Interest on investment	5 00
Proportional cost of cutter	2 00
Total cost	$229 00
Sold cattle in feed lot for	337 00
Profit	$108 00

These cattle were bought low and were sold well. They were common stock and were pastured two months and fed five months. I considered $108 quite a handsome profit after getting pay for all feed consumed. The manure paid for work of feeding.

Last fall I selected twenty head of high grade shorthorn steers, all three-year old and weighed 1,200 pounds average. These cattle were fed on corn silage, with but little corn in it, and cottonseed meal. About half the time they had a run to a straw stack on pleasant days.

These steers were fed in separate stalls and not one of them was off their feed the whole period of feeding.

They were fed twice a day, two and one-half pounds cottonseed meal at each feed, with all silage they would eat up clean; would mix the cup of cottonseed meal with silage. On this ration they gained 150 pounds in six weeks—a little over 100 pounds per month.

I gave three and one-half cents per pound and sold for four and ten one-hundreths cents per pound and a few dollars extra.

I have learned quite a valuable lesson from my last experiment. Have noted everything carefully, and hereafter for profit shall feed two-year-old cattle ranging in weight from 800 to 900 pounds, and feed only three to three and one-half months.

I found that a small steer would put on more fat for amount of food consumed than a large one.

This year was an exceptional one for record breaking in prices. Had prices been maintained in February, as heretofore, I could have made quite a profit, as the steers gained remarkably fast. I received $3 per ton for all silage fed, after deducting cost of cottonseed meal from cost price of stock and feed.

Speaking from experience, I would say for fattening one pound of cottonseed meal is worth two pounds of corn meal. Hereafter I shall remove all corn from stalks that go in silo and feed it to stock that I can realize almost double per ton what cottonseed meal costs, and as cottonseed meal with corn silage makes the very best of fattening ration, both chemically and practically, by this method we make a double gain.

Cottonseed meal fed to stock is by far the cheapest mode of buying fertilizers, as on the basis of commercial fertilizers, cottonseed meal has a manurial value of $28.68.

Farmers, as a rule, should study the balancing of rations more; by so doing we make quite a gain.

If the merits of the silo were better understood, I believe there would be quite a revolution in our general feeding system. This would create more of an enthusiasm to learn more of the value of each crop raised. Corn, clover, millet and all the grasses are suitable for the silo.

When only the ear is removed from the stalk, we leave the better half of our crop in the field.

We, as farmers, do not experiment enough. What if we do make mistakes? Our loss is some one else's gain. Have a definite system and work to accomplish its completion. Save and utilize everything on the farm. Be up with the times and advancing.

CARE OF THE SOIL.

KEEPING UP THE LAND.

BY T. A. PEDEN, SPENCER.

[Read before the Owen County Farmers' Institute.]

Farming was the first calling that God gave to man. Thus you see everything that lives has to get its support from the earth. Farming has to pay. The first principle of farming is to farm so as to keep up the farm, for when the farm goes down the farmer goes down, too. They both get poor at once. The earth is the foundation of creation. The second principle is to farm so as to make it profitable. Here is a programme I have used in the rotation of crops for twenty years with good success, and the farm produces better now than when I began, as I have this year raised seventy-five bushels of corn per acre:

PROGRAMME.

Farmer A—my own experience:

2 crops corn	1 crop wheat.
2 crops clover	2 crops corn.
1 crop wheat	2 crops clover.
2 crops corn	1 crop wheat.
2 crops clover	2 crops corn.
1 crop wheat	2 crops clover.

SUMMARY—PER ACRE.

8 crops corn, 400 bushels, at 33⅓ cents per bushel	$133 33⅓
4 crops wheat, 64 bushels, at 66⅔ cents per bushel	42 66⅔
8 crops clover, at 50 cents per acre	4 00
Total—20 crops in 20 years	$180 00

Average yield per acre, $9.00.

Average value per acre per year for twelve years' cultivation, $14.66⅔, a total of $176.00, after deducting the eight crops of clover valued at $4.00.

No manure was used on this farm.

Here is another man's programme, that of Farmer B, across the road from Farmer A, for twenty years' cultivation:

10 crops corn, 400 bushels, at 33⅓ cents per bushel	$133 33⅓
10 crops wheat, 120 bushels, at 66⅔ cents per bushel	80 00
Total yield for 20 years	$213 33⅓
Cost at $5 per acre for cultivation, eight crops more than Farmer A, or $40; had no clover, $4	44 00
Deducted, leaves the total	$169 33⅓
Average yield per acre for 20 years	$10 66⅔
Farmer A's total return over Farmer B's	10 66⅔

This shows a difference of about 53½ cents per acre each year. The great difference is, Farmer A's land is in a better state of cultivation than when he began, while Farmer B's land is so worn out that it will not produce now more than one-third what it did at the beginning of the term.

Here is another twenty years' experience of my own, designated Farmer C:

1 crop corn	1 crop wheat.
2 crops hay	1 crop wheat.
2 crops clover	1 crop corn.
1 crop wheat	1 crop hay.
1 crop corn	1 crop wheat.
2 crops clover	1 crop corn.
1 crop wheat	3 crops hay.

Manure was used on this farm.

SUMMARY.

4 crops wheat, 66 bushels, at 66⅔ cents per bushel	$44 00
6 crops clover, at 50 cents	3 00
6 crops hay, 9 tons, at $7.50 per ton	67 50
4 crops corn, 200 bushels, at 33⅓ cents per bushel	66 66⅔
Total yield per acre for 20 years	$181 16⅔

Average yield per acre per year for 20 years, $9.06.

Cultivated eight times, with an average yield of $13.83.

What we want is a better rotation of crops and more clover. A bushel of clover seed is the best fertilizer a man ever bought. I can take clover seed and plow any man under that uses commercial fertilizers, all expenses considered. Brains and good reasoning, properly applied, are good fertilizers. I seldom see a farm treated in this manner that does not produce well. We burn too much food for fuel, leaving our stock out to be exposed to the weather, taking more feed to keep them on their feet than would be necessary to make profitable gains if properly sheltered and protected.

Manure is one of the profits of the farm, but it is often wasted and lost. To manage weed fields, mow the weeds down before they seed, and they will return to the land what they have taken from it. In the way of a mulch and protection, grass is the earth's natural carpet and protection. So as the ladies have set the example in keeping their floors carpeted, let us keep the earth carpeted and protected and we will be well rewarded.

As this is a good season of the year for revivals, I would like to see the business interests of the country be one of the first sinners to repent and reform and give the manufacturer, machinist and producer markets for their products and the laborer and unemployed employment. But a word of consolation is sometimes as good as a word of information. We still have reason to be thankful—not because we have had a great national panic, nor because we have had so many bank failures, nor because there have been so many machine shops and factories of every description shut down, nor because there are thousands of laborers out of employment and starving, but because they are not farmers who are suffering; nor because taxes are high and produce low, nor because sheep and wool have gone down and horses are so low that we can't afford stirrups to get on them, nor because there have been almshouses established over the land to supply the poor with food. But we should be thankful that it is not farmers' families that have to be fed; that it is not farmers' children who have to go to bed hungry and get up cold for want of food, fuel and raiment; that it is not farmers who are thrown out of employment and out of homes. We are our own employers, and we are especially thankful that, notwithstanding all these disasters, panics and suffering, they do not effect the production of the earth. The earth still continues to produce, and is still lavish of her bounties to the industrious farmer. We still have the promise of seed time and harvest, and the promise has always been fulfilled. Thus the farmer may live a happy life and be free from many a public strife.

MY EXPERIENCE WITH FERTILIZERS.

BY J. Q. A. SIEG, CORYDON, IND.

[Abstract of a paper read at several Farmers' Institutes.]

My experience with commercial fertilizers is that in order that their use may be profitable, intelligence and judgment should be injected into their application and management.

If our land has all the necessary elements of plant food in it for the successful growing of crops, there is no need of going to the expense and trouble of adding commercial fertilizers; their application would be time and money thrown away, for such lands can be more economically and profitably farmed, and their fertility more cheaply retained, by a rotation of crops and the plowing down of such nitrogenous plants as clover, peas, buckwheat, etc. It is only on lands that have been, by improvident, injudicious and bad farming, so reduced in fertility that their cultivation no longer pays for the labor and time bestowed on them that we must seek the aid of commercial fertilizers to restore them to their former state of fertility, in order that we may be enabled to farm them profitably.

To improve and restore a worn-out soil, and at the same time make a living for an ordinary family from its cultivation, requires more thought and intelligence than it takes to farm a soil that has an abundance of all the elements of plant food in it. In the latter you only have to cultivate properly and remuneration follows. Not so with the former, as I have had an abundance of experience, having of necessity used commercial fertilizers for the past twenty-five years or more. And as I look back at my experience, I don't wonder when I see men sell their old worn-out farms, and go to where the land is rich and productive without the aid of commercial fertilizers. It has been with me a series of mistakes and unprofitable investments on account of a lack of knowledge of their properties, and the requirements of the soil with which I had to deal. Yet with all these years of experience, I find there are many things yet for me to learn in order to make the use of fertilizers a complete success; but there is one thing I think I have learned and demonstrated to my entire satisfaction—that it is unprofitable to use fertilizers of any kind except in connection with a rotation of crops, which should include the plowing down of some nitrogenous plant, of which clover is the best that has yet been introduced. The reason of this is that commercial fertilizers, unlike barn-yard manures, do not produce any humus in the soil, which is so necessary in the manufacture of plant food; but it is plant food itself in a concentrated form, and when it is fed out by the growing plants there is nothing left; the consequence is that without some material to furnish a humus, the soil is in as bad, if not worse, condition than it was before the application of the fertilizer. My idea of successful farming is to produce what we produce at the least possible cost, and at the same time increase the fertility of the soil and make it more productive.

Now, my experience is, in order to do this in a country like ours, where land is so cheap, the shorter the rotation, the sooner and oftener we get back to clover the better.

A rotation like this has proven very satisfactory with me: Haul all the manure that I can possibly spare from my stable and spread on my clover where I intend planting corn; this I do any time in the year when it accumulates, taking care not to let it accumulate in such quantities as to cause it to burn; plow down from the 1st to the 15th of May and plant to corn; cultivate well, which is an easy matter if managed in this way. As soon as the grain is glazed, cut the corn up, harrow well and sow to wheat, and back to clover; mow for hay and seed one year, and then as before manure for corn, and then back to wheat, always sowing about 200 pounds of fertilizer to the acre, which insures you an abundant clover crop, which, after all, is the sure foundation for all successful farming; for if you succeed in getting your land to produce clover in abundance, then it will produce almost everything else as well, and you are on the sure road to successful farming.

CLOVER AS A FERTILIZER.

BY D. J. TERHUNE, LINTON.

[Extracts from a paper read before the Greene County Farmers' Institute.]

The wisdom of Providence in giving us the different varieties of clover, each of which is especially adapted to a particular soil and climate is very apparent.

Thus the Alfalfa, which seems to grow to perfection where there is a deficiency of moisture and without irrigation, will prove very unsatisfactory here in Indiana.

The same may be said of some of the other varieties, as each has its own peculiarities and growing most luxuriant where climatic influences seem to insure and favor its perfect maturity.

But I shall confine myself to those varieties which are known to be the best adapted to our soil and climate, and base my arguments upon the merits of the common Red and English clovers.

And when I state that this plant is the key by which our farmers may unlock a store of wealth that is inexhaustible and beyond computation, I may not be able to tell why it is that this plant takes up nitrogen, carbonic acid and ammonia from the atmosphere, with its millions of tiny mouths, and restores to the soil these elements of plant food, which are absolutely necessary to the production of the various crops.

The roots of this plant penetrate the soil to quite a depth, thus loosening the same, while filling nature's laboratory with those chemicals whose combination we see in the golden grain.

We may well inquire why it is that European peasants are farming the same soil that has been in cultivation for three or four centuries, with an increased production, while, in our own State and in our own county, a quarter of a century of cultivation finds large tracts of lands that are barren and non-productive and almost without value.

The soil on many farms in this county is nearly exhausted, and the barren fields and hill-sides speak in mute language of the ignorance or carelessness that has so far characterized our agricultural development and progress.

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You point out to me a farmer who has continued, from year to year, to raise an equal number of acres of clover with that of corn or wheat, and I will show to you a man who produces a large yield per acre of all crops grown upon his farm. I will, also, show you a man who is generally prosperous; his stock is in better condition, and the world to him has more sunshine, and life a nobler purpose, as compared with the farmer who neglects this most important crop.

I had an occasion, recently, to examine a copy of Indiana's Agricultural Reports for the year 1892. I found that in 1892 this county had only 7,585 acres sown in clover, while Sullivan County had 17,822 acres of clover growing and enriching the soil. Over two acres to our one; yet she has a less area and a smaller population than Greene County.

In that year our corn crop in this county averaged only twenty-seven bushels per acre, while the crop in Sullivan County averaged thirty-six bushels.

In the same year Gibson County, having only two-thirds the area of Greene, had 23,218 acres sown to clover, or over three acres to our one, and her wheat crop averaged twenty bushels per acre, while our average was only seventeen bushels.

Knox County, in 1892, had 17,685 acres sown to clover, and her wheat averaged twenty-one bushels, while ours was only seventeen bushels per acre, and her corn crop averaged thirty-five bushels, while ours was twenty-seven. Thus Knox County farmers received four bushels more of wheat and eight bushels more of corn per acre average in 1892 than Greene County farmers.

In Clinton County 20,635 acres were sown to clover, and her wheat crop averaged eighteen bushels, and her corn crop thirty-nine bushels per acre in 1892, and that county raised twelve bushels more corn per acre than we did in this county.

Boone County had 20,900 acres sown to clover in 1892, and her wheat crop averaged eighteen bushels and her corn crop thirty-six bushels per acre; while Clay County had only 8,850 acres sown to clover, her corn crop, like Greene's, averaged only twenty-seven bushels and her wheat crop seventeen bushels per acre.

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I have known some German farmers in Knox County to pay from eight to ten dollars per ton for timothy hay to feed their horses, while making a crop, rather than sow their lands to timothy, which will soon exhaust the soil.

Clover, corn, wheat, and again clover, are followed in strict rotation with these frugal German farmers.

They made cheaper pork and beef, and raised more corn and wheat per acre, by this procedure, as I have already shown, than by any system of farming with which I am familiar.

In my own experience, after pasturing my clover crop with hogs, I have, on two different occasions, produced nearly seventy bushels of corn per acre on a clay soil.

In a year of general drouth throughout this section, I raised forty bushels to the acre, preceded by a clover crop, while on lands that had not recently been fertilized by this plant, my corn crop would not have exceeded twenty-five bushels per acre.

In last year I had nine acres of clover that produced seventeen tons of first-class hay, which sold for five dollars per ton in the meadow. The second crop I left upon the ground and did not pasture, and the indications now are that I will have a most luxuriant growth the present season.

If we do not estimate the fertilizing properties which are gathered into the soil of a crop of clover, it will pay a handsome profit if cut and made into hay, or pastured by hogs and cattle. But it is as a fertilizer that I desire you to consider this subject for the present, believing, as I do, that a revolution for the better in the production of crops, may be safely predicted when we learn the great value of this plant as a restorative and fertilizer.

From my own observation and experience I feel justified in claiming that a corn crop may be increased fully twenty per cent. on a clay soil if preceded by a crop of clover. The same will no doubt held good with regard to wheat; but at the present prices of that cereal and the prospective price, it will hardly pay to devote too much time or attention to this grain, unless the surplus produced upon the farm be fed to the hogs.

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We may have the very latest improved agricultural implements, the best teams, and the seed bed in fine condition, yet if the soil is deficient in fertility, our labor will be in vain, and we are soon ready to claim that farming does not pay. In a few years we are ready to take "the middle of the road," and become a "calamity howler."

We want Uncle Sam to come to our aid with some impracticable scheme. We seem to know more about the science of government than science of agriculture. We imagine that "free silver and fiat" money would replenish our purse and relieve the stringency that hovers about us. But the facts are that our old farms are run down and our fields are as barren of crops as our minds are of practical knowledge of farm economy.

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Even the study of nature with its millions of spontaneous productions in both the animal and vegetable kingdoms, as they feed upon one and another, thus maintaining an equilibrium, carries out the theory that she is no robber, but returns to the soil an equivalent for that which she removes. Man alone is the great pirate on the ocean of life, robbing nature of her beauties without giving value received. The lean domestic animal, the old dilapidated farm house, and the depleted purse are generally the results of an impoverished farm, managed by a poor farmer.

The soil impoverished means that fewer luxuries each year must reach the farmer's table; the good housewife must accept fewer comforts, and the children leave the old homestead at the first opportunity.

TILING.

BY E. SALTMARSH, SUNMAN.

[Read before the Ripley County Farmers' Institute.]

Tiling is a very important feature in good farming. First get good tile from four-inch up to six-inch will do for most work. Dig your ditches about forty to fifty feet apart, forty-five inches deep and up to fifty, with a smooth even grade, with the outlets well protected and kept open at all times. It is better to put in a little larger tile, and a little farther apart, and a little deeper, that means four feet deep, most persons think that four feet deep is too much, that it will not drain the land so well; they are afraid the water will not get to the tile, but I know that it will, and it makes the soil looser and more pliable, the roots of plants go down deeper, and the soil gets warmer and darker, and holds more water when it rains, and stands drouth a good deal better; the soil sweats like a pitcher in hot weather when it is filled with cold water, which keeps the soil in better condition for clover, and clover puts the soil in condition for any other crop, and that crop means more stock of all kinds. Clover is the crop of all others for the renovation of poor soils, such as we have here in Ripley County. All of our upland is a cold clay soil, or a soil that holds an immense amount of water, which has been water-soaked from time away back, and there is nothing that will improve things so much as tile, first, last and for all time. It will break up the hard pan that is in the soil, and let the air down through the soil, and then the roots of plants go down to a greater depth, and in a few years there will be a nice deep soil several degrees warmer than it was before it was tiled, and that gives us several days more to plant and sow, lengthens the season as it were. Any man that will tile his land and do the work right, will soon increase in prosperity, and make a better citizen and have money to spend and money to lend. There is more money in tiling than there is in lending money at 10 per cent. The farmers about here think they are to poor to put in tile, and the result is they stay poor, and they surely will until they mend their ways. I hope no man will be so unwise as to put in tile twenty inches or two feet deep, as he must get down in the soil if he wants the full benefit of tiling, and there is too much expense in tiling not to have the work well done, and it will not be well done unless the tile are down forty-five inches. I have been tiling some for thirty years, and have several miles of tile, and am trying to put in more every year, and would like to have 100,000 put in this year.

I am putting my tile a little deeper, and a little further apart, than at first. I think that our soil, when we get it tiled and clovered, will produce forty bushels of wheat and seventy-five bushels of corn, and that means more money. Some of us now are raising fifty bushels of corn and ten bushels of wheat, which does not pay much. A well-tiled field will take up the ammonia that is floating in the air, and appropriate it to the growing crops, and steal it from the poor crop that is growing on a sun-baked soil by the side of it. I will close by saying put in tile deep, four feet, sow clover, and you will have a deep pocket well filled with the essential that moves the world.

HOW TO ALLEVIATE THE EVIL EFFECTS OF A DROUTH.

BY COLONEL R. B. SCOTT.

[Read before the Lawrence County Farmers' Institute]

The committee, in assigning me this subject, did not consult me, nor did they consult my inability to treat properly a subject of such vast importance to the farmer in particular and the people in general; neither did they confine me to any particular branch or crop, but in their charitable consideration, left me a wide range to seek refuge in.

In these days, when severe drouths have become almost an annual visitation, I can think of no subject that demands more immediate and serious attention. We are brought face to face with this annual visitation as a physician who first seeks to find, if possible, the cause if his patient's illness before he can intelligently treat it. He knows that he can not cure a disease, but simply applies nature's aids, and lets nature heal herself.

So with us, we find our farms are suffering from a terrible annual fever (drouth) that parches up the whole surface; our fields become heated like the sands of the great Sahara. In our pools and branches all water supplies have been evaporated, until our water reserves are all exhausted, and we hear the distressed lowing of our herds; upon every hand humid vapor fails to rise, while the south winds are but successive waves of blasting heat, and the clouds refuse to bring refreshing showers. It is not strange, then, that we are asking each other the cause and the remedy.

Our ancestors were placed upon this virgin American soil as upon the second Garden of Eden, where everything conducive to feeding and clothing the human family could be produced, as it were, by waving the magical wand. The farmer, with his rude implements, could scratch the surface of the earth, take counsel from the stars and moon and plant his grain; the regular sunshine and showers came and went and his crops yielded an hundred fold. Those were the days of muscular farming, when no thought was taken of cause and effect. When the primitive farmer went forth from hewing unto hewing down the vast forests about him, clearing up the leaf beds, draining swamps, bayous, pools and ponds, the natural water reserves of our country, while Ceres sat upon her throne, and with her right hand, regularly opened and shut the windows of heaven, while her left dispensed showers and sunshine.

The decaying roots and fibers left from the recently hewn forests left our subsoil punctured full of holes, forming a vast receptacle for catching and retaining the surplus water, holding it in reserve to be drawn upon later on. This condition has long since passed away; we have left us, a veritable hard-pan subsoil as a base of cultivation and the old harum scarum scratch surface policy has by tne alternate scratch and shower so diminished the fertility of our soil as to render it almost impervious to the current rains; hence clouds may come and rains descend, but the waters are rushed as down a mountain gulch and our fields soon become hard and dry and our crops are wilting from drouth. What is the remedy? Like the physician, we cannot cure the disease, but we can aid nature to heal nature's wounds. We can not, at regular intervals reach up into the sky and open and shut the floodgates of heaven; nor like the Aztec of old, sacrifice our first born upon the altar of the rain god, but we must abolish that old scratch-surface policy of farming and abandon that trait of the dark ages, counseling the dips, and fulls and changes of the moon, and obey the dictates of nature's laws, in obedience to that voice which is crying out from nature, "Behold! if you understand my laws and do them, ye shall be like gods, and die like men."

It is not our wish, if it were in our power, to restore the old swamps, bayous, pools, etc.; neither would we replace the vast native forests; but we must resort to scientific principles, with modern tools and nature's own aids for the forming of a subsoil water reserve. The hard-pan, baked subsoil must be punctured and made porous, that it may be able to retain a portion of the surplus water, to be drawn upon during a subsequent drouth. We can not take a machine and go over this hard-pan surface and puncture and probe it full of holes, but we can take the improved plan and go down deep and loosen up and thoroughly pulverize the whole surface. Then, as nature originally punctured it with living roots, let us do the thing nearest approaching nature's method. In my limited range of knowledge, I know of nothing that comes so near supplying this want as clover, the roots of which for several feet penetrate and puncture the hard-pan subsoil, and from the bowels of the earth bring forth mineral elements and deposit them upon the surface, while its branches reach heavenward, gathering in chemical gaseous elements from the four winds of the earth.

When we shall come to break up this clover field we will find that the decaying roots have left the subsoil thoroughly honey-combed, forming a complete receptacle to receive and retain water, and making an underground reservoir to be drawn upon for at least two seasons.

Not only should this be seriously considered from the standpoint of a drouth, but as a means of furnishing our stock with nutritious food; and, lastly, but not least, it furnishes the farmer his best and cheapest fertilizer. When we consider that we, in the State of Indiana, buy annually not less than 50,000 tons of fertilizer, not barter for or trade one product for another, but pay out and send away in clean cash, not less than one million dollars annually, it demands our earnest, serious and united attention.

FARM CROPS.

SPECIAL CROPS.

BY ANCIL D. MILLS, JR., FAIRFIELD.

[Abstract of a paper read before the Union County Farmers' Institute.]

In the consideration of beans to be relied upon as one of the sources of income on the farm, the first point to be determined is adaptability of soil and climate. In this we have a very easy test by referring to wheat, for where these conditions are favorable to wheat they will be to beans.

Next comes the question of profit. It is an accepted rule that beans will produce as many bushels per acre as wheat on the same soil. As to market price, a friend, who annually handles many thousands of bushels, has furnished me the average price of four varieties. They are as follows: Red Kidney, $2; Marrows, $1.75; Mediums, $1.50; Peas, $1.40. So you can easily see what the relative proceeds are with wheat and beans. Twenty bushels of wheat at fifty cents per bushel is hardly as desirable as twenty bushels of beans at $1.50—$10 against $30. There is but one other point of comparison, and that is cost of production. Without going into details, beans will cost $5 per acre more than wheat—that is sown in corn—and $3.50 more than wheat sown on fallow ground. Comparing with corn I estimate that beans will cost $3 per acre more. Estimating corn at fifty bushels per acre and forty cents per bushel, the proceeds will be $20. Beans at twenty bushels per acre and $1.50 per bushel amount to $30. Deducting $3 extra expense you still have a balance of $7 per acre in favor of beans. I will mention a case that came within my knowledge some three or four years ago. This same man who gave me the average prices for the different varieties rented a forty-acre tract, which had been in blue grass and pastured by sheep, to two men who put it in beans. The half of the crop was worth more than the man valued the land at. A good many years ago a man near where I was born bought twenty-five acres, put it all in beans, and paid for the land with the proceeds. Last year my brother had $270 gross proceeds from five acres in beans, or $54 per acre. I am not giving these as an average, but to show the possibilities of the crop. This year my brother realized only $24 per acre. While I have known beans to sell at $3, and even $4 per bushel, the average price is as I have stated before. I consider them a good, reliable and profitable crop.

The preparation of the soil must correspond very nearly to that for corn, and follows soon after the planting of that crop. The manner of planting beans also coincides with that of corn, a two-horse planter similar to a two-horse corn planter being used. The first difference is in distance apart; the beans being closer together in the row, and the rows or drills only thirty inches apart. This is as close as they can be and allow successful cultivation with a horse.

The cultivation of this crop, like that of others, should begin before it is planted. The thorough pulverizing of the soil is essential to any good degree of success, and this can be best and most easily done before putting in the seed. It will make the elements of plant food more accessible and bring the ground into the best condition for receiving and retaining the moisture needed by the plants. When this condition has been met, frequent shallow cultivation and keeping free from weeds will do your part toward producing a crop, and you can safely trust the Lord to do his part. It is highly important that the cultivation be level, for the earth thrown against the plant will injure it, and later will injure the beans in the lower ends of the pods. I have never known of using other than one horse in the cultivation of beans and do not think two could be used, because the rows are so close together. An ordinary five-hoe cultivator is universally used. Among the various kinds of hoes used on the cultivator my preference has been for a thin steel plate about three inches broad and two and one-half inches long, riveted to a slender shank. The advantages of this are that it does not throw the soil against the plant, while it cuts *all weeds* and stirs the ground well, keeping it loose and mellow.

The rotation usually followed is to plant the beans on a clover or timothy sod, clover being preferred, and then if the crop has been thoroughly cultivated and kept free from weeds, so the land could be fitted without plowing. Some follow the same season with wheat; others sow barley or oats in the spring.

If you have bottom lands the pea beans or the red kidney would probably do best, as marrows would be more inclined to rust.

Another item which, while not of the greatest importance, is yet worthy of mention, that the bean fodder can all be saved and fed to the sheep, it being regarded as an excellent food for them, though it would be wise to feed it only once a day to breeding ewes.

The special machinery necessary for manipulating a bean crop is a bean planter and a bean puller. This latter is driven astride a row and leaves the beans lying on the ground behind. It works rapidly and satisfactorily, pulling from five to ten acres a day, according to the condition of the ground. The only precaution necessary is not to let the beans get too dry, as they will then shell somewhat. After pulling, two men go over the field with forks and place about six rows together so they will be convenient for loading into the wagon. Where they do not make an extensive business of bean raising one planter and puller would do for a neighborhood. The cost of a planter is about $40 and of a puller $30. Where they make a business of bean raising they have bean threshers. These have two cylinders and require less speed than ordinary grain separators. The price for threshing by machine is five cents per bushel.

If any of you intend trying a few acres of beans, give them as good a chance as you would your favorite crop (and if that is not as good as it ought to be, make it so), and I think you will not be disappointed.

TOMATO CULTURE.

BY B. R. PRATT, SHARPSVILLE.

[Abstract of paper read before the Tipton County Institute.]

The man who intends to grow tomatoes and make a success of it must begin early in the season. For in no item of farming is the saying "the early bird catches the worm" truer than in the growing of a tomato crop. The success of the crop depends, very largely, on a thrifty, early plant. It is a known fact that the tomato produces and matures its fruit continuously from the time the first fruit matures until cut by killing frosts.

The warm-bed for starting the plants is the beginning point in tomato growing. This should be made the last days of March if the weather will permit. It should extend from east to west, and slope to the south, giving the sun all advantage. It should be located on a southern slope, or better yet, on the south side of a plank fence or an old buliding. The warm-bed should contain about a foot in depth of heating material. The best thing for this is fresh stable manure, among which has been mixed a goodly quantity of straw used as bedding. This should be packed solid in order to prevent settling. On top of this is placed the seed bed, which should be of the richest and mellowest soil possible. It is a good plan to procure this in the fall, and have it so that it can be covered up, thus insuring you dry soil just when you want it. Another word about the manure. It should be hauled and allowed to stand five or six days, and then rehandled, after which it should remain in the heap five or six days more, when it is ready for use.

Planting the seed. This should be done in drills across the bed. The width of these drills depend on the size of your bed compared with the number of plants desired. A square inch of space to each plant will produce good plants; but more room would produce better ones. I think it much better to drill than broadcast; and to have the drills four or five inches apart, and have them thick enough in the row to make the required number of plants. The seed bed should never be allowed to become thoroughly soaked with water, but watered only enough to keep the plants growing.

Now comes the selection of the tomato field. Tomatoes can not be produced on clay soil satisfactorily, if it is rich. It does not pay to set tomatoes on clay ground. Neither is swamp or pond ground just the thing for the tomato. There is too much danger in the early frosts on this kind of soil. The best soil for the tomato is that which we find the very best to produce corn. Select black soil, keeping away from deep ponds as much as possible.

The tomato ground should be plowed early and kept cultivated until time for setting. This depends upon the prospect of future frosts. They should be set as early in May as can be done without the likelihood of being cut down by frost. I believe it will pay to run some risk on this score. Plants set early will live better and start to growing much sooner than those set late. Tomatoes should be set, I think, not closer than four feet each way, and four feet by five is a good width. Make the rows wide the way you want to go when picking.

The tomato plant needs its cultivation while small and should be worked soon after setting out. They need about the same amount of working as corn. I make the following figures on what I think a light yield of tomates, two hundred bushels per acre, or six tons:

Rent	$7 50
Preparation of soil and cultivation	3 00
Plants	4 00
Setting	1 50
Worming	3 00
Picking	6 00
Hauling to factory	4 00
Total	$29 00

Six tons of tomatoes at present prices are worth $39, less $29 expense leaves $10 net. After this amount has been taken from an acre two-thirds of the overplus may be counted net gain. Hence, on a yield of three hundred bushels, or nine tons per acre, the net gain is $23; and a yield of five hundred bushels per acre, or fifteen tons, the net gain is $48. I have known some instances in which the yield has exceeded five hundred bushels, and consider three hundred bushels not more than an average crop one year with another.

HOW TO GROW CORN.

BY J. S. PFRIMMER, BRECKENRIDGE.

[Abstract of a paper read before the Floyd County Farmers' Institute.]

The preparation of the ground for a corn crop should begin the year preceding the planting. If corn is to follow wheat, sow to clover in February. If to follow spring crops, sow to rye in September. Do not grow corn without turning under a green crop of some kind, where it is possible to secure it.

Do not break your ground before the first of May, and if you have force enough to do it quickly wait until the 10th of May. Occasionally when you have growing weather in March and April, rye may become too far advanced in growth to wait until the 10th of May. See to it that it does not become too hard in the straw before turning under. When breaking the ground use a jointer on your plow, that you may cover up all surface matter. Break deep and follow with a drag or other pulverizing device. Do not go to dinner without first having well pulverized all that is plowed before noon. Prepare your seed by cultivating a small plat isolated from all other corn, broom-corn or sorghum. Go through it every two days and remove all stalks that show any signs of smut. Watch it carefully and when the "tassel" appears remove all stalks that do not show signs of earing. Those stalks will do more damage by discharging their pollen on the fertile corn than anything else, and I might say everything else combined. Some farmers are trying to grow two ears on one stalk. They will do better by seeing to it that every stalk has an ear. When ready to plant, lay off a trench with a common shovel plow as deep as you can without disturbing the green matter turned under. Make the rows three feet and six feet wide alternately. This will give your corn good ventilation and make your rows average four and a half feet. Set your drill to drop twenty, sixteen or twelve inches in the row, as the strength of your soil will allow. This will return you sixty, eighty or one hundred bushels per acre. Soil that will not grow sixty bushels per acre in an average season should not be cultivated in corn. Make your cultivation a surface cultivation. Use one horse and a five-hoed cultivator. Set to go through the narrow row once and then adjust it to go twice in the wide row. Keep the surface well pulverized. Stir once a week for six or seven weeks after the corn is up sufficient to commence. Sow two bushels of rye in September; keep all stock off the rye, and grow as much corn next year. The writer grew eighty-eight and a half bushels corn last year after turning under a heavy crop of clover (May 12th), where soil as good in the neighborhood did not produce forty bushels. In the latter case there was no green matter to sustain it in the severe drouth last season, and the corn was cultivated in the "old fogy" way with a two-horse cultivator.

Farmers of Indiana, can we, living in the finest corn belt in the world, afford to be beaten in the growing of the finest crop on earth by those not so favorably located? Mr. Drake, of South Carolina, grew 255 bushels, and Mr. Rare, of New York, 216 bushels per acre. Let us wake up and not be content until we have reached those figures.

CORN CULTURE.

BY M. L. HARRIS, RISING SUN.

[Extracts from a paper read before the Ohio County Farmers' Institute.]

Corn, as well as other crops, requires a good, deep, mellow seed bed. The farmer who cultivates his land thoroughly before planting will be well paid for his labor, both in the increased yield and expense of after cultivation. Cloddy ground should be well pulverized, if possible, before planting; if not before, as soon after as practicable. In some instances on heavy cloddy land it is advisable, to draw a drag in the furrow in front of the drill, thus improving the seed bed. Much care should be exercised in the selection of seed. If you can not tell good seed by its appearance, the safe way would be to test its vitality before planting, and if 100 per cent. does not germinate, discount it. The next important step is cultivation. What does it do? It eradicates the weeds and loosens the soil. Why destroy the weeds. First, because they consume plant food that the corn needs;

second, they absorb moisture which the corn should have; third, they shade the ground. Corn needs, and must have, an abundance of light and heat in order to maintain a healthy growth. Next we will consider the effect of stirring the soil. First, it increases plant food by permitting the air to circulate more freely, thus enabling the roots to take up plant food more easily.

Stirring the soil tends to loosen and pulverize it, thus enabling the roots to extend and penetrate the soil more readily. We now come to a point upon which there are diversified opinions. Some favor deep, others shallow cultivation. I am of the opinion that the first plowing should be at least four inches deep, and as the plant advances in growth the cultivation should become more shallow. It is possible that we injure our corn more than we are aware of by breaking the roots in cultivation. We will refer to some experiments that have been made on this line. Thomas F. Hunt, while connected with the Illinois Agricultural Experiment Station, made some investigations regarding the depth of roots below the surface. Six inches from the plant, that being about the distance the inner shovel would come to the plant, experiments were made in 1888, 1889 and 1890. Less than two inches from the surface only one root was found in 1888, none in 1889, and but six in 1890. Between two and four inches from the surface twenty-two were found in 1888, thirty-one in 1889 and one hundred and fourteen in 1890. Over four inches from the surface one was found in 1888, seventeen in 1889, and fifty-nine in 1890. This examination was on loose, rich prairie land. It is reasonable to suppose that upon heavy clay soil a large proportion of the roots would be nearer the surface than was found in the above case. Professor J. S. Newman, with a surface soil nine inches deep, estimates that the position of roots were such that a plow run four inches deep, one foot from the plant, would disturb more than three fourths of the roots. This was in Alabama. Observations of the same nature were made in Iowa, Illinois and Central New York with about the same results. Mr. Hunt observed, also, that the early development of the root system was surprising. He observed one plant one-half inch high with a root eighteen inches long, and another, three inches high, with a root thirteen inches long. The natural inference to be drawn now would be, is it injurious to the plant to disturb the roots? We will now note the results of some experiments on that line. On a rich prairie loam in Illinois, I think, Mr. Hunt states that experiments were made in 1888, 1889 and 1890. In 1888 every other row was pruned three inches deep on four sides, six inches from the plant. The remaining rows were at the rate of eighty-eight bushels per acre, while the unpruned were ninety-two and one-half bushels, a decrease of five per cent., due to three-inch pruning. In 1889 the experiment was repeated, but instead of pruning three inches deep as before, they pruned four inches deep, with a loss of 16 per cent. due from pruning. In 1890 the loss due from pruning was 23 per cent. It is seen from the above experiments that pruning three inches deep caused much less injury than pruning four inches deep. Prof. Goff, Geneva, New York Station, and Prof. Hayes, of Minnesota Station, made same experiments with similar results. The yield of fodder was 17 per cent. larger, and the yield of corn was 27 per cent. from that not pruned. This pruning was done six inches from the plant and six inches deep. The question arises now, Does deep pruning injure the plants? Does not the benefit of stirring the soil deep more than counterbalance the injury done to the roots? Let us refer to some experiments made on rich prarie land at the Illinois Experiment Station, in regard to deep and shallow cultivation. The experiments were made in 1888, 1889–90. Eight-tenths-acre plats were used, and the treatment of each was the same, except the cultivation. On one plat the soil was not stirred at all, but the weeds were kept down by merely scraping the ground with a hoe; on this plat the surface was flat and hard throughout the season. Three plats were cultivated shallow, and three were cultivated four inches deep, with John Deer four-shovel cultivator. The following were the results: The plat receiving no cultivation produced in 1888, ninety bushels per acre; in 1889, seventy-seven bushels per acre; in 1890, sixty nine bushels per acre. The average for the three years was seventy-nine bushels per acre. The plat cultivated shallow yielded in 1888, ninety-four bushels per acre; in 1889, eighty-three bushels per acre, and in 1890, sixty-eight bushels per acre; average for three years, eighty-two bushels. From the plat cultivated four inches deep in 1888, eighty five bushels were received; in 1889, seventy-four bushels, and in 1890, sixty-three bushels. Average for the three years, seventy-four bushels. The average per cent. of increase from shallow cultivation during the three years was 10 per cent. Similar experiments were made in Missouri, in 1889–90, with an increase of 25 per cent. in favor of shallow cultivation. The yield from the plats having no cultivation, was greater in every instance than the yield from the deep cultivation. Five or six inches is considered deep, three inches ordinary, and two inches is considered shallow cultivation. Numerous experiments have been made in Ohio, and all of them report favorable to shallow cultivation, with but one exception. In that case deep cultivation yielded the most, but in this case they reported the soil to have been in very poor condition. I think it very probable that deeply cultivated soil will hold moisture better than that cultivated shallow. But when we take into consideration the depth of roots, and the results of the various experiments and observations, I am led to the conclusion that better results will follow from shallow cultivation after the first plowing. I prefer the first to be when there are not more than two leaves on the plant, and the cultivation should be such as to cover up the weeds. Although it may be somewhat tedious the first going over, it will well pay in lessening the work of after cultivation.

At what stage of growth should cultivation cease? I prefer not to disturb the roots after the plant tassels, and, perhaps, a few days before that period. It is probable that surface cultivation about time of tasseling would be advisable. This tends to keep the surface mellow so that the air penetrates the soil more readily, and the finely pulverized soil forms a mulch, as it were, thus holding the moisture to considerable extent. We can not formulate a theory that would be advisable to follow on all classes of land. I presume that on loose, mellow, sandy loam land, that does not become compact, good results would follow cultivation entirely with a one-horse harrow. While on land that compacts or runs together, as we term it, it becomes absolutely necessary to loosen the soil during the early stage of growth. We should study the character of our respective soils, and let that govern the mode of cultivation to a considerable extent. We must exercise our own judgment, and not depend too much upon or be governed by theories. It is probable that if we would experiment on manner of cultivation, etc., ourselves, we would receive fully as much and very probable more of that which is practicable than we realize from theoretical advisers.

In conclusion I will say, stir the soil sufficiently to kill the weeds, once a week if possible, until near the tasseling stage of growth, but disturb the roots as little as possible. If the season is a dry one, turn the soil over frequently. If wet, stir the soil just as soon as it will admit of handling after the rain. Don't allow the ground to crust if you can possibly avoid it. If weeds get the start of you so that you can't down them with the cultivator, take the hoe to them. The weeds must go. Corn will not flourish in a weed patch.

COST OF GROWING WHEAT.

BY T. F. M'CALLIE, NEWBURN.

[Abstract of a paper read before the Bartholomew County Farmers' Institute.]

Owing to the low price of the products of the farm and the necessity of economy in the management of the same, and believing it to be true that in order to be successful, it is as necessary for the farmer to understand his business, not only in producing the crop and disposing of the same, but to understand as well, what his stock in trade costs him as does the merchant or manufacturer. I set myself to work to find out what it cost the farmers to raise wheat in Bartholomew County.

My plan was to include every item of expense connected with raising and marketing wheat, charging for my own labor the same price I would have to pay some other man to do the same work. Using my own experience in connection with the experiences of a number of the practical farmers of this part of the county, I found that it cost on sod or fallow ground—

	Per acre.
For breaking	$1 25
Harrowing and dragging	75
Rolling and cutting	50
Drilling	35
Cutting and shocking	90
Twine	15
Threshing	60
Help in threshing	50
Board in threshing, including horse feed	50
Interest on money invested in land	4 00
Fertilizer	1 50
Seed wheat	1 00
Delivering wheat to market	60
Total	$12 60

On stock ground—

Sowing, including preparation of ground	$0 84
Turning corn including waste of same	23
Use of drill and harrow	10
Cutting and shocking	90
Twine	15
Threshing	60
Help in threshing	50
Board in threshing, including horse feed	50
Seed wheat	1 00
Fertilizer	1 50
Delivering wheat to market	60
Interest on money invested in land	4 00
Total	$10 92

Which would give $11.76 as the average cost per acre of raising wheat in this county. We find the average yield in this county for the past ten years has been a little less than twelve bushels per acre, which would make the wheat raised in this county during that time cost a fraction over ninety-eight cents per bushel.

When we consider the fact that the use of teams, harness, board of men and horses, and also the high price labor commands during the season the crop is sown, harvested and threshed, you will see the charges are not excessive. The fertilizer or manure is probably estimated too low. As to the item of interest on money invested in the land, $4 per acre is certainly low enough. There are but few farms in this county but have more or less waste land, or land that is non-productive, wood land in some cases, public highways, land occupied by fences, houses, barns, out houses, etc.

If a man buys a farm of eighty acres at $50 per acre it costs him $4,000. He pays taxes on the whole amount. If there are ten acres of this land that are non-productive the seventy acres must pay the taxes and interest on money invested. If we cultivate ten acres of the seventy in wheat it should pay its proportion of interest and taxes on the whole amount.

But I will not speak further of particular items of expense. Study them for yourselves, bearing in mind all the time that you are entitled to the same pay for your labor when working for yourself that you could get for doing the same work for some other man. One thing we want to be careful about; that is adopting the mistaken idea so common with people in general, and our city cousins in particular, that the farmer can afford to raise a crop of wheat or corn even at a loss, from the fact that he has his poultry, eggs, butter, milk, vegetables, etc., that are constantly growing into money or a living for the family, without any particular effort or much outlay. Every pound of butter, dozen of eggs, chicken or peck of turnips made use of by the man who produces them are worth exactly as much as they would bring in the market. Let the wheat crop, the corn crop, the garden, the orchard, and every other branch of the business stand or fall on its own merits.

An individual has money invested in the banking business; also in the mercantile business. He is making $1,200 per year with his bank and losing $800 per year with his store. Shall we say to him, go ahead; you are all right; while you are losing money in the store you are making enough with the bank to meet tha loss and still leave you a margin of profit. Will he go on as before or will he make an effort, by adopting other methods, to bring this unprofitable business up to a paying point, or, failing in that, will he not close out the store, put the capital he has invested in it and the energy it takes to run it into the enterprise that does pay? Or, in other words, will he not do exactly what every farmer should do, thoroughly inform himself in every detail of his business, and when he finds that he can not get a fair interest on the money invested, with reasonable pay for his time while occupied with that business and something for the risk he carries, quit that and try something else? As a result of this investigation I have concluded that it will be necessary for us to adopt some plan to increase the yield to a paying basis, or quit raising wheat and take up some other crop in its place that will pay.

SHALL WE CONTINUE TO PRODUCE A SURPLUS OF WHEAT?

BY B. F. BENNETT, GREENSBURG.

[A paper read before the Decatur County Farmers' Institute.]

The substance of the question assigned by this Farmers' Club, is:

What shall we do with our wheat lands in view of the prevailing low price of wheat, the visible supply on hand, and the present prospect for the new crop.

The text, if such term we may apply to this subject, naturally divides itself into three considerations:

First. Do we wish to continue our present gait in wheat production?

Second. Is such advisable, even were we assured in the immediate future of remunerative prices?

Third. What disposition shall we make of lands now given to the growing of that wheat producing the surplus which "bears" the market, when necessity compels us to reduce the present area of our wheat land?

We will treat of these in their order, and now the first: "Do we wish to continue our present gait in wheat production?"

I have read many ingenious articles since the marked increase in wheat production and the like decrease in price, leading to bright hopes for the wheat farmer in the immediate future.

The authors of these articles, mostly magazine, tell us that the gradual increase of population will make a certain steady increased annual demand for 8,000,000 bushels of our wheat from our own people; that we have reached the topmost round in the ladder of wheat production and henceforth our yields will decrease, for the reason that our virgin soil has been exhausted; that our arid lands will not produce wheat unless we irrigate them, and the requisite amount of water can not nearly be commanded for such purpose, and if it could, the cost of irrigation alone would exceed the value of the wheat grown; and for a further reason, as the one conclusive, that all the available land fitted for wheat growing in this country has been and is now occupied in the growth of that cereal; that the same causes leading to an increased demand and decreased supply in the immediate future apply with equal force to every wheat consuming and to every wheat exporting country on earth.

These are a few of the claims as set forth why the time is even now at hand when we shall realize from home and foreign demands for our wheat the prices of by-gone years.

Notwithstanding the apparent conclusive showing favoring the continuation of our present manner of wheat growing, my belief is that it should be suddenly and radically changed—that we proceed no farther at the lively gait of the past few years.

These statements are not based on facts. Every agency is at work to increase and will increase wheat production till such time as the continuous loss in its production will properly and profitably regulate the crops grown.

The very general adoption of commercial fertilizers have and will augment wheat yields to a degree hardly calculable.

The clay hills of Jennings County, and the flats of Ripley, by the liberal use of these, produce wheat crops enormous in yield and superior in quality, while a few years since these lands yielded barely the bread and seed for their owners.

The railways, ramifying every district of our domain with grain elevators every four or five miles, encourage the raising and sale of grain to the neglect of stock raising.

A glance toward foreign lands shows the building of a railway, with branches, through the wheat belt of Russia, likewise in parts of Asia, Africa, Australia, New South Wales, South America and in all parts of the globe where the climate and soil are adapted to the growth of wheat, to add to foreign competition for the wheat market of the world.

Our own transcontinental lines place the farmer of the east, whose land costs $100 per acre, the middle state farmer, with his lands worth $50 per acre, in competition, with no special advantage, with the western farmer, whose lands sell for from $3 to $5 per acre. To so compete the eastern and middle state farmer purchases fertilizers, doubles his acreage in order to realize the sum from his wheat crop of former years. The western farmer, with no concern for his soil, without money, land to improve, houses to build, fences to make, resorts to the quickest method to realize the needed money, and sows largely to wheat. He harvests his crop with the header, and the new machine, drawn by twenty-six horses, cutting and threshing as it goes. Thus the vain struggle continues, increasing the yield, lowering the price, sinking deeper into the mire with little prospect of extrication.

The increase of large land holdings, with consequent tenant farming, is inimical to stock raising and favorable and inviting to grain raising and grain selling. But the existing condition giving a special gloomy aspect to wheat growing is the complete line of machinery employed in its production—from sowing to garnering—from the gang-plow to the Cyclone stacker. No grain is raised with so little labor. The machinery multiplies the labor and will lead to blind raising of these enormous crops. In the face of 612,000,000 bushels of wheat in 1892, 560,000,000 in 1893, a continuous freight train loaded with wheat 7,000 miles in length, 10 solid freight trains side by side from here to New York City.

Russia and Germany entering into a treaty by which rye enters Germany from Russia practically free, depriving us of our German trade in rye, and lessening it in wheat, we are without hope for any marked betterment in the near future, and we should reorganize our farming.

Our second consideration is that being assured of remunerative prices in the immediate future, shall we continue our present course? Every argument negatives such a course. Such means successive croppings, shipping to Europe and foreign lands the fertile elements of the soil to enrich their soils, not our own. Our exports are in the form of wheat—but little flour. Did we only export our grain manufactured into flour, if export we must, the milling industry of our land would be greatly enhanced, giving work to additional thousands in grinding grain, building and equipping mills, and, not least of all the quantity of bran and middlings so retained would greatly benefit every stock raiser, and add to the enrichment of our soil. These are no mean advantages in favor of the foreign miller and foreign countries as well, to give the rich profits of grinding from 100,000,000 to 150,000,000 bushels of wheat annually to foreign millers, or the profits of grinding one bushel out of every four or five bushels that we grow, or a yielding of one-fourth of our milling industry. After all can we not profit by the example France sets for us, with an area less than the State of Texas, whose annual yield of wheat second to that of no nation on earth save the United States, is an importer, not an exporter of wheat, carrying on to her domain more than she carries off—the principle that should govern every truly scientific farmer in the care and building up of his farm.

The contention might be made that we could continue grain exportations, depending upon commercial fertilizers to maintain the proper fertility of the soil. Fertilizers add but little plant food to the soil. They are chemical agents applied to the soil acting upon it as a solvent, thus releasing the plant food locked up in the soil. The continuous use of the commercial fertilizer applied to the same field year by year means the slow impoverishment of that field. The action of the commercial fertilizer on soil may be likened to a sponge filled with water, you squeeze the sponge and dry it. By the continuous application of fertilizers to the field you dry it of those elements essential to the crop being grown. The only redeeming feature of the fertilizer is the luxuriant growth of grass following where a proper rotation is had, bettering in this the soil. Yet continuous fertilizing for continuous crops on the same field impoverishes that field.

As a solution, then, to this vexed problem, apply the same principle to insure national prosperity as the true farmer applies to his farm, export as little wheat as possible, depending on the home market, and not have longer staring us this "visible supply" so hostile to even living prices.

Now we are brought to our third and last consideration: "What disposition shall we make of lands now devoted to the growing of that wheat producing the surplus which 'bears' the market, turning as we should from our present method of farming."

We are not to abandon wheat growing; it is one of the farm products. It is a pivot crop in the crop rotation to turn the land to grass. We must grow *less* wheat; sow eighteen acres where we now sow twenty-four; sow only in wheat when you wish to follow in grass; never sow on the same land twice in succession; adopt a five years' rotation with corn, then oats, then wheat, then grass two years, rather than the usual three years' rotation of corn, wheat and clover. You have from your soil wheat one year in five, not one in three. This will reduce the wheat area and better maintain the soil's fertility by retaining all the crops and forage on the farm, feeding them out, save the wheat sold one year in five from the field, unless the same can be fed profitably to live stock, not proper for discussion here. The rotation I suggest combines the stock and grain farmer, and must of necessity fatten the farm, leaving it as a goodly heritage to our children. This would lead to increased stock raising in our middle and western states, with the consequent demand for permanent pasturage, reducing materially the wheat acreage. It would apply especially to Kansas, where we have been confronted with seventy million bushels as the wheat crop of a single year.

California can reduce her wheat area by giving way to the rapid encroachments of her fruit growers. Her soil and climate adapts her to an almost exclusive growing of fruits, and the change is rapidly coming. The east, with large cities and dense population, can turn her unprofitable wheat land to market gardening, truck farming, poultry and dairy interests. The great northwest still remains. Her soil and climate make hers the best wheat lands in all the world, unless it be the present famed wheat belt of Argentina. Yet her products can be profitably diversified by growing more rye, barley and oats, for stock food and market purposes. The short, hot summers of that fertile region make hers a territory sought by the capitalist interested in canning factories, an industry growing to enormous proportions by reason of our repeated fruit failures by frost and increasing insect depredations. Her luxuriant growth of millet, hay, grass and early corn, encourages the founding of cheese and dairy interests. Her alluvial soil produces the grass for summer grazing; cellars and tight barns store roots and house the feed for winter care, supplemented by the silo filled with rich ensilage, and can you imagine a better dairy region?

Summing up: The lands given to growing our surplus wheat can be profitably disposed of by the east turning more to truck and vegetable farming; the middle and western states more to stock growing and feeding; the Pacific slope to fruits; and the northwest to canning and dairy interests.

Such I believe the laws of trade will produce, with which the depression of the farmer will pass; that the time is near at hand when our lands will appreciate in value and the husbandman be properly rewarded for his toil.

LIVE STOCK.

WHICH IS THE MOST PROFITABLE LIVE STOCK FOR THE FARMER TO KEEP?

BY W. O. JACKSON, SOUTH BEND.

[Read before the St. Joseph County Farmers' Institute.]

The question, What is the most profitable stock on the farm, is one of great importance to every farmer in every township, in every county, in every state, and in every nation in the world, and has been from the earliest dawn of civilization down through the middle ages to the present time, and very likely will be for all time to come.

Within the century now coming to a close we have brought into existence the best breeds of horses, cattle, sheep and swine that have ever existed on the earth, and we have likewise brought into practical use the best farming implements that have ever existed, and we have the best system of transportation from the producing fields to the consuming markets of the world that ever has been enjoyed by any people at any time during the world's history. And with all these advantages, together with a remarkably fruitful year, which has given the people of the United States the most abundant supply of agricultural products that has ever been gathered in a single year by any nation either ancient or modern. Still the producers of the most of these articles on the list are unhappy. Prices of stock are too low, and the same can be said of wheat, corn, oats and barley, and all the other products of the farm. Such are the conditions under which we commence the year 1894. And I am well aware that farmers and stock raisers will feel but little interest in anything I may say upon the subject, unless I can point out the way toward relief from the hard times that have prevailed for the last few years.

Progress in all great movements is provokingly slow. It is especially so in matters pertaining to agriculture. The average farmer will make but little progress unless forced to do so by financial pressure; then it is a "bicycle case," he must go on or go off. He must either make the improvements or go back. Then the average farmer will take counsel and not before.

I know farmers who thirty years ago said their farms were rich enough. They kept very little stock and made very little manure, and hauled out only what they had to to get to their barns. Their crops were grain, and they sold that and burned the straw or hauled it off and sold it. They were soil robbers. Some of them have sold out and gone west to practice the same there on newer lands. Others have changed their mode of farming and have adopted mixed farming, and are raising both stock and grain, and are doing moderately well. Those that have stuck to grain alone are the ones who are doing the most complaining now, for it is a fact that our richest land that has been in cultivation for a long time shows unmistakable signs of failure. So I have made up my mind, and believe that the only system of farming that is or ever has been successful for any great length of time is stock farming. It is clear to my mind that profitable farming and productive lands are closely connected with flocks and herds, and these in turn with the extensive cultivation of the hay and forage crops. If this be so, then what kind of stock is and has been for a number of years the most profitable to raise on the farm? I believe there is good money in a limited number of all the different farm stock, horses, cattle, hogs and sheep, and perhaps poultry.

HORSES.

A limited number may be bred and raised on the farm with great profit. To the extent that a farmer can furnish profitable work for the dam, can the average farmer raise horses with profit, but I do not believe there's profit enough to justify the average farmer to keep the dam a year for the chance of raising one colt, and especially a "scrub" colt. But in the better grade of horses there is more chance of profit on a larger scale.

SHEEP.

I believe there is good profit in a small flock of large sheep, well bred and well fed, but in a large flock of poorly bred and poorly fed sheep there is very little profit and probably a positive loss. On sandy, gravelly, hilly, and stony land sheep do well, and can be raised at a profit, perhaps better than any other stock.

HOGS.

Every farmer should raise a limited number of hogs on his farm, and that limit should be gauged by the amount of surplus corn the farm will produce. One can well afford to purchase middlings to mix with the kitchen slops and the surplus milk and other feed that would otherwise be wasted; to raise hogs enough to eat up the surplus corn—calculating to feed the corn the last three months immediately before turning them off to the butcher.

CATTLE, AND ESPECIALLY DAIRY CATTLE.

No farmer is so poor that he can afford to do without a cow. I consider that there is more profit on the first few cows (that is if they are good cows) than on any other stock on the farm, and I would only limit the number by the amount of surplus rough feed the farm was capable of producing, such as hay, fodder, etc. The final measure of all profit and value of farm animals is their capability of meeting the wants of man. I consider that the dairy cow, and especially the Holstein dairy cow, is capable of meeting the wants of the average farmer of the middle states better than cows of any other breed. In the first place, three-fourths of all the cattle in these states are kept in comparatively small herds by farmers who do not believe that they can ignore either the beef-making or milk-giving qualities in their cows.

Farmers who are not special dairymen are not content to keep a cow simply to raise one calf a year. I consider that the best breed of dairy cows occupies comparatively the same place in stock-raising that the clover crop does in grain raising. The clover crop is the proper rotation. It goes before all other profit. In fact, our grain farms are made profitable by clover, and without clover I think our profits in grain farming would soon be exceedingly small. The same with the dairy cow. She can be kept with profit before all other stock. Then see how she will help produce all other stock. In raising poultry I know of no other feed that is better for young chickens or the production of eggs than milk and bread, milk and meal, milk and bran, and the more milk the better; or, if you are raising sheep, there are nearly always some lambs you have to raise by hand, and cow's milk is what you want. The same may be said of horses and colts. Milk is the best feed to give colts that I know of. It is also good for old horses; it puts them in good condition. I know of no other food equal to milk for hogs; in fact, milk, middlings and clover should be the main feed for brood sows and pigs up to within three months of the time you calculate to turn them off to the butcher. The dairy cows not only go before all other stock in profit, but they go before all grain crops as well. I have owned the farm on which I now reside about six years, and during those six years I have kept a herd of dairy cattle. Those cattle have paid me a very good profit on the money invested. I have also increased the fertility of the soil until to-day I believe the farm is capable of paying interest on $20 per acre more than it would the day I purchased it; and I believe by keeping the right kind of stock I can still keep increasing the fertility of the soil and still make a good profit on an increased number of stock.

I will say nothing against any of the different strains of stock cattle, for I believe there is profit in all the principal breeds. I have been breeding Holsteins for the last twelve years and now I believe them to be the best cattle for the general farmer there is in the world. They are the most healthy cattle I am acquainted with; they will produce more milk, butter, cheese and beef than any other breed of cattle, and nine out of every ten are extra good milkers, and therefore need but very little weeding out, and their calves are uniformly strong and healthy making a rapid growth, very frequently making one hundred pounds per month, and for veal I think they are the very best. It is a well known fact that some breeds of cows are not capable of raising their calves. Some give such a small amount of milk that their owners have to purchase common cows to put their calves on, others give milk enough but it is so badly balanced that it does not make the calves grow, their calves become peaked and it is almost impossible to make a veal of them without changing them to a different cow. It is different with the Holstein cow; it is an easy matter for a good Holstein cow to raise two calves and make them grow 100 pounds each per month, and milk that will do that is the very best for family use, while milk that is so poorly balanced that it will not make a calf grow is not fit for family use. The Holstein milk contains all those ingredients which are necessary to produce health, growth, bone, muscle and fat in about the right proportion to make a perfect food and hence is a rich milk. The Creator might have created a kind of stock that would supply the wants of mankind better than the Holstein-Friesian cow and He might have given us a kind of stock more profitable, but I do not believe he ever did.

SHEEP HUSBANDRY.

BY MR. WILLIAM ERWIN, BOURBON.

[Extracts from a paper read before the Marshall County Farmers' Institute.]

While the present outlook for the sheep industry is in no wise encouraging, I think it the part of wisdom to keep right on in the even or rather up grade of our way. That is, up grade of our flocks. Grading up to better sheep. And if we have to compete with foreign wool, let us do our best as to wool and mutton. The question then presents itself, can we grow wool on a free-trade basis? I hardly think we can, and yet I am going to hold on to my sheep. The way that sheep were sent to the shambles from this county last fall, many of them thin of flesh, the owners receiving almost nothing for them, was not wise. Most of the farm products are at present depressed, and every farmer knows that he can not raise wheat at 50 to 55 cents per bushel, yet we do not abandon the business, but keep right on and try to raise more wheat each year per acre, thereby lessening the cost of production. So should we with sheep, stand by them, and as they have painstaking and careful shepherds in the past, so I hope they will in the future. I will not say that they will bring an income of 100 per cent., as was said here last year, but a nice, modest variable income of 10 to 25 per cent. exclusive of feed.

CARE OF SHEEP.

As this is the season of the year that sheep need housing, if at all, I will devote a little time to it. For one, I have little patience with the no-shelter—for sheep—advocates: That nature has provided him with a warm coat, that he needs no other protection. The man that can go to his flock in the morning, when the mercury registers 10 to 15 degrees below zero, sees portions of wool pulled out, frozen to the ground, or hard-packed snow, on which they laid during the night, and tries to console himself that it is nature and all right, does not merit much respect. Nature is not always a tender mother, as every one knows. And if we leave them to her mercy, we will, probably, as all of us many times have seen the sheds and barns literally covered with lambs that could not endure the storms of February. If you do let "nature take its way," for decency's sake bury them out of sight. We have seen sheep huddled together to protect themselves from the cold and storm, objects of discomfort enough to raise the sympathy of any person not devoid of feeling. Sheep do not have so much intelligence as most domestic animals.

To illustrate, suppose you have a fine lot of young lambs in April; the morning being fine you feed your sheep and allow them to go to the field, in a short time the air is changed, a cold, driving rain sets in. If you are a good shepherd, you will go at once to house your flock. And now comes the test of your morality. The perishing lambs will seek shelter behind stumps or fence, and the mothers will bow their backs, and the more it rains the more they won't go to shelter. If you succeed and get them safely housed with a good drenching for yourself, while changing your clothes you will wonder where all the fine instincts that nature has given this animal have gone, and if you conclude to leave them to nature, and look after them the next day or week, you will have occasion to indulge in profanity, if you ever do, at nature's advocates. The truth is that sheep are almost wholly the product of art. They have been under the watchful care of the shepherd for thousands of years, and it is quite safe to say they are much changed and improved by selection of careful breeders.

The sheep, however, retains some of its early characteristics. One of which is timidity. The natural sheep evidently depended on flight for preservation, as they yet do. Consequently, if sheep are neglected, or frightened by dogs, they will not near a stable, or go anywhere they are liable to be hampered. This is why open sheds are useless. The least fright will drive them out. There is another consideration, however, no farmer in Marshall County can afford to overlook in housing sheep, that is the loss of fertilizers. If they are left out the manure is mostly lost in the lanes, fence corners, and washed down stream. This, alone, in a few years will build sheep barns for you. And I am sure when Purdue experiments on sheltering sheep, as they have in cattle, it will be found equally profitable.

As to the kinds of stable, two stories, or bank-barns, are more economical, as you get so much more under the same roof. It is better to have a barn, if you are keeping eighty or more sheep, entirely devoted to sheep, as you will need more and better ventilation than for other stock. I think a model sheep barn is a two-story structure, the size proportioned to the flock, with upper doors or windows to occupy at least half of the upper space. I once saw such a barn, the whole upper space could be thrown open. The upper doors or windows should be closed during stormy weather to the windward. You should have mangers in the barn, and room enough for all to get at the feed at one time, so that the weak ones do not have to stand back until the strong ones have taken the best of the feed. If you have a large flock separate the weak ones and make two flocks. A barn 30x40 feet will accommodate 100 to 120 sheep. It is always well to keep in mind that if you want to have them do extra well, more room would be advisable.

Small flocks do better than large ones even when they have feed abundant. So that we must conclude that the breath of one sheep is injurious to another. The shepherd should not fail to have a liberal supply of good hay on hand, clover preferred, or clover and timothy. Clover is much more economical for the farmer to grow on account of its fertilizing qualities, but as sometimes happens it is almost impossible to get it cured in good shape. I think it advisable for every farmer to have, also, some timothy and if you fail on your clover you have yet a chance for some good hay. Stock sheep should have a liberal supply of hay in the manger in the evening; in the morning give them a ration of grain, one-half to a bushel per

100 sheep, if oats, more, this to be graded as to the condition of your sheep. In feeding them for fattening purposes it will be necessary to feed grain twice a day and from two to three bushels per 100 sheep. A small flock in good order in the fall can be wintered in good shape without grain if the hay and fodder is good and they are properly cared for. There is another thing that should be mentioned here. Do not fail to give your sheep some wheat bran once or twice each week with their grain, or better still, every day when it is not so windy as to blow away the bran. Oil meal in small quantities mixed with bran or corn is excellent. If you raise lambs try it, not as a steady diet, but once or twice a week. If the weather is not too inclement, after they have eaten their grain and you have corn fodder, give it to them on some clean ground that needs fertilizing. In the evening let them go to the barn, kept dry and clean, with plenty of straw for bedding. If you have no straw, sprinkle your floor with gypsum or slacked lime. Put fresh hay in every night and do not fail to have your sheep in so that they can not run out if frightened by barking dogs or other cause. There is quite a temptation for farmers to leave their sheep out in fair weather, but I deem it best to stable every night during the cold season or when we may look for cold rains or storms of any kind. It is the time of year that we have sudden changes in the atmosphere and a cold rain will seriously damage the flock. If sheep are not too timid they will always seek shelter in extreme cold or snow, but in rain never. And yet rain does them much more harm than snow or cold—another morsel for the advocates of nature.

CARE OF LAMBS.

If your sheep have been wintered properly you will not likely have much trouble in raising a fine lot of lambs. But if you have many to care for read up and study up. There is much written on this subject. I only care to say that if you have a flock of any size, do not try to raise twins unless it is a very exceptional dam. Give one to a neighbor for a pet, or save to be adopted by another mother that looses her lamb The art of making sheep adopt other lambs is easily learned and seldom fails. The reason for not allowing one ewe to raise two lambs is obvious. One good lamb is worth more than two poor ones, and the trend of the times seems to indicate that only animals par excellent will pay for feed and care.

When sheep are turned to grass in spring, it is a critical time with them. Give them an occasional feed of hay in the barn after the new grass has started. Also keep up the grain ration until they are accustomed to the change. If the sheep get filthy, tag them. It is inhuman to let them go until the blow-flies attack them and they are eaten up by inches. It is an excellent plan to tag all the sheep before the new grass comes on. If you are not going to have enough grazing land for your sheep it is best to keep them off the pasture until the grass gets a little start. As they so delight in green food as to almost dig the grass out by the roots rather than take dry. If they are troubled with diarrhea, and they will be pretty sure to some of them at this season, give them a ration two or three times a week of bran and oil meal, and a little salt. Be careful not to put too much salt in, as they will eat too much to get the bran and meal. And now let me say I think it an excellent plan to keep this up all season. And if you add one peck of corn to the 100 sheep when you come to wean the lambs in the fall you will find they eat grain as readily as older ones, and will not loose flesh in consequence of weaning. And if you sell to the shipper you will be both surprised and pleased when they go on the scales.

Farmers of Marshall County who have raised good lambs in the past have been able to get good prices until this season, and even this we did fairly well on the good ones. Raising good lambs for the market has been for the past few years my best hold, and I will not surrender at the first disaster.

SHEARING.

Shearing should be done in our climate after the middle of May to the first of June. Do not allow your sheep shorn on a cold day, as it is inhuman to strip them and turn them out in a cold wind. If they are shorn on a warm day they will get accustomed to the change, and will not suffer so much when it gets cooler. After they are shorn they should be carefully housed from cold nights and long cold rains. Many sheep are lost by carelessness on this point. Every one that keeps sheep should know how to shear them, and be at hand when they are shorn. I often think farmers make a mistake by having sheep shorn by the head, as they frequently are roughly handled by unthinking or heartless workmen, who only have in mind the amount of money to be got out of the job. If you are a young man in the business, or expect to go into the sheep industry, learn to shear. Then you will be able to know if your help is efficient. A great deal of cruelty is practiced by unthinking shearers in compelling a sheep to be in an uncomfortable position, and getting mad and abusing it if it struggles.

CARE OF SHEEP DURING SUMMER.

It used to be an old maxim that sheep like calves often need change of pasture and even of farms or neighborhoods. If a farmer should neglect his sheep and they should run down he would say to the sheep buyer, "My sheep are all right but they need a change, I guess I will sell and buy again after a while." This old well-rooted idea is certainly fallacious. It is even better to allow them as little change of pasture as can be. If you have water and feed and your flock is not too large they will do well to remain in one pasture during the season. Change of pasture has a tendency to bring on diarrhea, and, here I will say that sheep should always have access to water. There are some portions of the year when dews are abundant and grass fresh they will need but little water. But if you get the idea into your head that this is not an important point, you are liable to neglect them and seriously damage your flock.

BREEDS OF SHEEP.

Most beginners are at a loss to know what kind of breed to start with. Unless you are raising sheep to sell for breeding purposes, any good sheep will do and personally I know of flocks of mixed breeds of very superior sheep. Most depends on care and feed. All our breeds are good in their places.

Thorough-breds always preferred. As to fancy breeding, but few are adapted to it and the most of us would do well to leave this to men of long experience.

Do not be satisfied with ordinary sheep, but aspire to the best and take pride in them, and you will be rewarded in finance and in the consciousness that you have been humane toward your best of friends.

I cannot close without one more allusion to the dog of whom Byron says:

> "The poor dog, in life the firmest friend,
> The first to welcome, foremost to defend."

But it is doubtful if he had ever visited a sheep-fold after the dogs had had a revel there, and seen some of the poor creatures with their noses eaten off almost to the eyes, others torn and mangled in every conceivable shape, just as if it was the work of a fiend, intent only on torture. For if he had he would surely never have penned these lines. The bark of a dog always frightens sheep, and after thirty years experience, I conclude the Indiana sheep raiser needs no dog. Not even a fine haired Shepherd. I once owned a dog as good as the best, but it takes time and patience to train one, and after they are trained they are serviceable for only a few years, as they are a short lived animal. Of course they are useful on the range where sheep are herded out almost the year round. But it is amusing and sometimes aggravating, the prevailing opinion in reference to these same dogs. My neighbor often passes through my sheep lot, and when I remonstrate about the dog that is always with him he evidently pities my ignorance and says "Oh he wont hurt anything; he's a Shepherd." And when I explain that he frightens them, he cannot see the point. So I conclude that the shot gun is a good thing to have, for these same Shepherd dogs are as much to be dreaded as any kind.

Hoping I have said something that will make you more considerate in the treatment of all dumb animals, I thank you for your attention and courtesy.

BREEDING AND FEEDING OF SWINE.

BY W. B. LINDLEY, SALEM.

[Abstract of paper read before the Washington County Farmers' Institute.]

The first thing of prime importance in the breeding of swine, is the judicious selection of animals intended for breeders. There are several improved breeds of swine now existing in the United States, any one of which possesses characteristics and qualities of excellence.

Having posted yourself upon the merits of the different breeds, and decided upon the one that your fancy dictates, set about to purchase the foundation stock. Visit, if possible, the herds of several reliable breeders, and select the hogs that fill as near as possible your ideal of a perfect hog.

The breeders of all the different improved breeds of swine now have their record associations, and standard of excellence. You may follow this standard, or have one of your own, but always have an ideal and strive to reach it, or your success in breeding will have been in vain.

Select animals that have a uniformity of characteristics, and avoid as far as possible the mating of extremes, in the hopes of producing the desired results. The better way is to select only uniformly good, and discard the bad tendencies. The downward road is much the easier traveled, and it requires constant care to keep in the path of progress.

Breed from nothing but pure-bred stock, and do not cross the different breeds. While the first cross is generally accompanied with good results, yet if this course is pursued the results will be far from satisfactory, and you will soon be in the possession of only a lot of scrub stock.

Swine breeding, like everything else on the farm, has undergone quite a change in the past few years. It was formerly believed that it was impossible to market a hog until he was at least eighteen months old, when they would usually weigh about 250 pounds to 300 pounds. Hogs cared for in that way now would be raised at a loss. A majority of the hogs raised now are farrowed in the spring and by the time they are seven to nine months old they are ready for market at a net weight of about 200 pounds to 250 pounds. This is the most profitable hog for the farmer to raise. It seldom pays to winter fat hogs, or to raise fall litters. Occasionally, under the most favorable circumstances, it may pay, but this is the exception and not the rule, while the price is usually a little better in the spring, yet the cost of production is greater and the profits correspondingly less. The greatest profit in pork production is in the first one hundred pounds. The second hundred is produced at a greater cost than the first, and the third greater than the second, and so on. About 200 pounds is a profitable sized hog, and they should be marketed at about that weight.

Corn has too long been the principal diet for hogs, partly from its being easy to feed and partly from habit, but the breeders who are now making the greatest success at hog raising are those who are feeding less corn and more bone and muscle producing feed, such as ground wheat or oats, bran, shorts, milk, kitchen slops, etc. Good clover pasture, together with a little corn, makes a splendid ration.

The breeding stock should have good comfortable winter quarters, which should be both dry and warm. This subject has long been sadly neglected, especially with the general farmer, but I am glad to note the advancement now being made in this direction.

Small, movable houses are preferable to large ones in point of economy and disease. A house about eight feet square, six feet high in front and three feet at rear, with a small window and a door is a convenient size. They should be provided with a fender to prevent the sows overlying their pigs. The house should stand facing the south so as to admit of the greatest amount of sunshine

The hogs should be provided with a liberal amount of bedding, which should be renewed at least once a week. If they are where they can not have free access to running water, they should be supplied with fresh water every day. Burnt corn cobs, or charcoal, salt and ashes are almost indispensable adjuncts to the pig pen. It will aid digestion and will tend to tone up the system to a healthy condition.

The common idea prevailing among most farmers that breeding stock should be kept poor is a mistaken one. While they should not be corn fat, yet they should be kept in a good, thrifty, growing condition and it is seldom that they are made too fat, provided they have been fed on a complete ration, bone and muscle producing feed. The meat block is the ultimate object in swine raising and the hog that has the greatest assimilative powers is the one that will make the best breeder. Such a hog will be more likely to transmit these qualities to their offspring than would one of the opposite build.

A great many farmers have gone into the swine business, have purchased their foundation stock when they were high and by the time they had a good lot ready for sale, possibly the prices were very low and thus not receiving the profit they had anticipated, have abandoned the business perhaps just as it would have been the most profitable time to stock up. They have not failed because there was no money in the business, but from their own lack of knowledge and intelligence and stick-to-it-ive-ness.

HOG RAISING ON THE FARM.

BY J. H. GWALTNEY, POSEYVILLE.

[Paper read before the Posey County Farmers' Institute.]

Successful hog raising on the farm depends largely upon the thought, care and attention given to it. Some farmers seem to think the hog capable of taking care of himself, and consequently requires but little attention. In fact they seem to believe him so nearly self-raising that labor spent in caring for him is thrown away. Did you ever stop to think and estimate the difference in the cost and value of hogs raised on adjoining farms? Why one neighbor has "good luck," and the other bad luck in raising them? They have the same breed, are equally situated, and yet there is no resemblance in what is produced. The hogs of one are strong and healthy, those of the other weak and puny. One is satisfied with the result, the other is not. One makes money by taking care of the hog, the other looses it by letting him take care of himself.

They are turned into fields, old and young together, a little corn is thrown to them occasionally, and the care ends. No sheds are prepared to shelter them. They pile up together, the larger ones crushing the smaller. Compelled to take the rain, sleet and snow they enter a squealing protest. The brood sows are given no further attention. They are expected to raise eight or ten pigs out in the open field. The pigs are drowned, frozen or eaten by the half-starved hogs. Spring comes and what have not been killed or died from exposure, take the cholera, or something akin to it, and the owner goes about bewailing his "bad luck" in raising hogs. Say to this fellow, "your neighbor succeeds in growing good hogs," and he replies, "well, they eat their heads off, if he does."

This idea is wholly erroneous, both in theory and practice. No breed of live stock kept on the farm will give better returns for good treatment, either in growth or profit, than the hog. Niggardly feeding is not cheap production, nor will large profits follow it. These are the result of that care and feeding which insure rapid growth and early development at the least possible cost. Pigs having the run of clover certainly require some additional feed, if this end is to be accomplished, but the quantity of food is no more important than the preparation and manner in which it is fed. Heavy, irregular, slip-shod feeding gives poor returns. Half the quantity properly prepared, and rightly fed, will produce much better results. In saving and growing pigs nothing pays better than thoughtful care and attention. No farm industry is successful that is not made to yield a fair profit on the cost and labor employed, and the most profitable is the most successful. Hence the one who meets the greatest success in growing hogs is the one who bestows the most labor upon them and receives the greatest value for it.

To raise hogs successfully, three things should be understood: *First*, the kind of hogs to raise; *second*, how to select breeding stock capable of producing what is desired; *third*, how to feed and care for them in order to secure the most gain at the least cost.

By the kind of hog we mean the most profitable one for the general farmer to raise. We all agree that the one which will produce the most and best pork, at the least cost, time being considered, is *the* hog. But as to what type will do this there are various opinions. Some claim it is the very large growthy one; others say it is a smaller, more compact fellow; while still others contend that a small, medium, very compact one. beats them all.

For ourselves we prefer a rather large, growthy, medium hog in build, with tolerably compact form. He has feeding qualities almost, if not quite, equal to the small one, while he has much better elements of growth, which are very valuable in the production of cheap pork when it is considered that the growth is made principally on cheap feed, such as green clover and gleanings from the stubble. He can easily be made to weigh fifty pounds more at eight or nine months old, twenty-five of which at least is a net gain over the small one. Being larger and more loose he is less liable to run down and become knotty from bad crosses in breeding.

In the selection of brood sows, especial care should be given to what is desired to be produced. They should be chosen from the best families, and the fullest and best litters. Pork producing qualities should not be sacrificed to those of style and beauty. The head and neck should be short and broad, jowl heavy and firm, chest broad and deep, back and loin broad and straight, hams broad and full down to hock, flank low and full, body deep with under line straight. The limbs should be short, straight and tapering, with short strong toes. The bone should be clean, smooth, well-shaped, and of fair size. That they have good feet and limbs is very important.

The lame hog makes a poor mother, a bad feeder, and a worse seller. The more uniform they are in breeding, size, form and color, the more sameness may be expected in the pigs produced. In growth they should be above rather than below what is desired to be grown, as the tendency to run down is much greater than otherwise. And from the further fact that large loose sows mated to close-compact males will produce much more even pigs than if they are the reverse in form. The importance of this fact should not be overlooked in breeding, for aside from pleasing the eye it has considerable to do in fixing their value when placed on the market. Since the object in breeding should be to grade up, the male used ought to be as nearly perfect in breeding, type and size as is possible to get. To be crossed on sows of a little extra growth a perfect model of the ideal hog should be settled. By selecting and breeding in this way the size may be more fully maintained, while the pigs produced will be sufficiently uniform to sell readily at the best prices.

To get the cheapest pork the breeding should be done from the first to the fifteenth of December, having the pigs farrowed the last of March and the first of April. They should be in a good, thrifty condition when bred and gradually increased in flesh until fat. Never allow them to run down in flesh after breeding, if strong, healthy pigs are desired. Keep a record of the breeding and have pens prepared to take care of the pigs. These should be placed far enough apart so the one will not be disturbed while attending the others. They should be confined to the pens two days before they are expected to farrow and kept there until the pigs are four or five days old.

The health of the pigs depends to a great extent upon the care of the feeder. When feeding, go quietly up to the pen, see how the sow is lying and place the feed so she will get up and walk directly to it. This precaution will prevent her turning around in the bed and tramping the pigs. Be very careful what and how much you feed while they are young. Young pigs require but little milk and for this reason the mother should be fed very sparingly at first. Of course, if the milk fails to start, she should be given something to start it. But it should not be brought to a full flow until they are two or three weeks old.

Give the sow plenty of pure water to drink, and the pigs fresh, clean bedding. Many pigs have been allowed to die for the want of a new bed. As soon as they will eat, a little soaked meal should be fed. As they grow older some shipstuff should be added, gradually increasing the amount. When six or seven weeks old a little shelled corn, well soaked, but not soured, may be substituted for the meal and fed lightly during the entire summer. They should be fed just enough to keep them in a good, thrifty, growing condition and no more. To make them fat is not only a waste of feed, but a positive injury to them. If kept fat they will suffer much more from the heat during the hot days of summer, be more liable to disease, become broken down in the feet and dwarfed, poor sellers in the end. Be sure they have a clean cool place to lie in during the long, hot days. Keep them well supplied with pure water to drink. Give plenty of the best and cheapest medicine, salt, ashes and coal.

The fattening should begin the latter part of August or the first of September. Nothing is better to give them a good start than a few weeks run on green corn. We are aware that some object to this plan on account of waste. Some waste is almost sure to follow yet where the corn grows tall it will rarely exceed the cost of gathering. It saves feeding at a time when the farmer is most liable to neglect them on account of the rush in preparing the ground and sowing the wheat. Besides they will utilize the sap from the green stalks in assimilating the food, which aids materially in stimulating growth. As a result they almost invariably get a more even start than if taking the corn from the field and feeding it be relied upon. But they should never be turned in the corn the last of August or first of September without a shade. If there is none in the field one should be provided. Build a temporary scaffold of old rails and cover it with green stalks cut from the field. In this way a shade may be made to accommodate fifty or sixty pigs with but little labor. It should be built near the watering place, so when it becomes dry and dusty a few buckets of water may be thrown under to lay the dust. A few hours spent in this way will add greatly to the comfort of the pigs as well as $25 or $30 to the purse when they are sold.

After they are taken from the cornfield to be finished for the market, they should be fed regularly three times a day. Irregular gorging, such as dumping out a wagon load of corn to save feeding is very poor economy. Young hogs, especially, should never have quite all they will eat from one feed to another. Eight to ten ears of corn per day is all they will require. Give them plenty of good, ripe pumpkins in connection this and watch them grow.

If they are properly bred, and rightly fed they can easily be made to weigh 250 pounds at seven and one-half to eight months old. With corn at the present price they can be grown to this age and size at a cost of $6.50 to $7 per head, or about $2.40 per hundred. At the present prices of grain and pork everyone is ready to admit that hog raising is a paying business. But were these relative prices reversed quite a number of those rushing into it would be just as ready to rush out, declaring it a losing one. With almost the entire spring wheat belt being driven into it by the low prices of wheat, it is altogether improbable that these values will long be sustained and the one who enters the field of hog raising expecting it, is most sure to be disappointed in the result. The fellow who aims to jump in when they are high and out when they are low, will fail in the end. He will seldom have hogs to sell when they are highest, but is sure to have them when they are lowest. Consequently he fails to secure the best profits while he is forced to sustain the heaviest losses. This is why so many farmers fail to make it pay. They are always jumping, but never light in the right place. No matter what may be said against it, "hog and hominy," "pork and beans," "ham and eggs," will always be eaten. So if you wish to succeed stay right in the field. Grow a good lot of pigs every season and when the final balance sheet is struck it will show a profit for the hog.

POULTRY.

BY J. W. STERNE, BROWNSTOWN.

[Extracts from a paper read before the Jackson County Farmers' Institute.]

Belgium, the most densely peopled country on the globe, with an area (in round numbers) of 11,000 square miles, and a population of over 5,000,000, produces annually 300,000,000 eggs, and this is accomplished under the most adverse circumstances such as would discourage the staunchest and stoutest hearted of any of those now before me. Again France, with an area of 204,150 square miles, realizes more than $200,000,000 annually from her poultry products. These countries are cold and damp as compared with this country. Their space being contracted, the fowls are confined and highly fed and so subjected from crowding, to sickness and contagion, and yet despite all this the French poultry farmer realizes a net profit of from 20 to 85 per cent. on his business. Careful inquiry reveals the astounding fact that the United States, instead of supplying first her home market and then shipping her poultry products to her sister countries, annually imports over $3,000,000 worth of eggs alone, both from Europe and Canada. So, friends, you can readily see the fear of some that the poultry business will be overdone is groundless. There is a very common and popular error to the effect that mongrels or common fowls will surpass any pure breed in all useful qualities. Such, let us impress upon you, is by no means the case. But because your flock is now composed of mongrels do not chop their heads off, but grade up your stock by using pure bred male birds. In no case is it advisable, or we might say admissible, to use a scrub male bird. We do not wish you to infer that mongrel hens with pure bred males will surpass in any way the pure breeds, nor would we advise the keeping of grade birds, but suggest this as one way of improving your stock.

For whatever point is desired in a stock bird it is to be remembered that there is some one of the many varieties of fowls in which that point has been specially and eminently developed to a far greater degree than can be found in any barndoor or common fowl. It matters not whether the desired feature be in the shape of constant laying, large size, fine quality of meat, early maturity for the market, hardihood, beautiful appearance, or, in fact, almost anything else, there is at least some one fowl in which that quality is the leading characteristic, and which is, therefore, the best for the purpose desired. Where expense is an object, as we said before, very valuable results are often obtained by putting pure bred males with fine mongrel hens. Thus a game or dorking mated with any fine large-framed birds will always produce much improvement in the table qualities and early maturity of the chickens. So likewise a Spanish or Minorca cock will generally increase considerably the number of eggs from his progeny, but when only one lot of fowls can be kept, we are convinced from long and varied experience that good and pure varieties will in the end prove better than any mongrels.

None of these lay so well as certain pure breeds; none grow so large, none are so hardy or such good eating. Hence none are so likely to answer the purpose of even the purely commercial poultry keeper. The chief breeds of poultry may, for economic purposes, be classified as follows, the order of naming representing as nearly as possible their average comparative value, though this will vary somewhat according to different circumstances: As layers, Leghorns, Crevecœurs, Hamburgs, Houdans, Polish and Spanish; for quality of meat, Game, La Fleche, Dorking, Houdan and Langshan; for size and weight, Brahma, Cochin, Langshan, Wyandotte and Plymouth Rock; for hardiness, Leghorb, Houdan, Brahma, Dominique and Plymouth Rock; as setters and mothers, Dorkings, Games, Dumpies and Silkies. We might, perhaps, add that for a combination of useful qualities generally, we would name Brahma, Plymouth Rock, Houdan and Wyandotte. We have now mentioned the varieties which, as a rule, will yield the best returns in the various circumstances alluded to, but of still more importance than a wise selection of breeds is the proper age of the birds themselves. Considered merely as a producer of stock, no hen should be allowed to see more than her third autumn. With valuable birds the case is, of course, different, as apart even from prize winning, a dozen fertile eggs from a proved first-class bird may be well worth the keep of a year, but in any other case the rule should be rigidly enforced of killing every hen at the age of 2½ years, at the first symptom of moult. In very many breeds, Brahmas particularly, the second season's eggs are more numerous than the first, but after that all fowls show a great falling off, whilst they also become too tough to be eaten. On the other hand, by killing at the age stated they may be either eaten or sold at a fair price, while the best part of their lives only is any expense to the corn bin. No rule is so imperative to profitable poultry keeping, and none is so constantly neglected. Not less important is the time of year at which the birds are hatched. It has been often repeated in various works on poultry that a pullet in whatever circumstances must begin to lay at a given age, but this we know is by no means the case, a difference of months being caused by the time of hatching. If the age of five months finds a pullet belonging to one of the more prolific breeds in the midst of warm weather, say August, eggs may be expected about that time, in fact great care is needed if it is desired to prevent laying at such seasons. But birds hatched in May will complete their sixth month in October, and in very few cases will eggs be procured before Christmas, if even then, unless the feeding be unusually good. Still later hatched, let us suppose late in May or early in June, it will be as late as next spring before most of the pullets are producing eggs, and ere this occurs many of them will be at least nine months old. Supposing that the fair average time for a pullet to commence laying is at the age of six months, and that the cost of her food be (as in large breeds it is) about three cents per week, a late May pullet must be fed three months longer at an additional outlay of thirty-nine cents before she yields any return; and it is in this way that oftentimes the books show the profits on the wrong side of the page.

Nearly all fowls, however mismanaged, and if not too old, will, so long as they are in tolerable health, lay freely in summer, but eggs are then cheap, and it is the winter that chiefly decides which side of the balance sheet shall preponderate, Eggs in winter mean profit, the want of them as certainly means loss. Regarded, then, as laying stock, one-third should consist of early hatched pullets, another third hatched the spring previous, and the remainder a year older, which will be killed at moulting time, so that at every autumn the hens at two and one-half years of age will be either killed or sold and replaced by pullets six months old which will commence laying almost immediately, and be followed in succession by the hens as they moult out, thus keeping up a regular and constant supply of eggs.

Much depends upon the breed. No single breed possesses more than one talent or dominant quality, nor can the crossing of any two breeds unite all the characteristics of both, though the offspring may combine, to a limited degree, the merits of its parents, and while not being equal to either in some respects, may be superior to them in others. We have named for eggs Leghorns, Crevecœurs, Hamburgs, Houdan, Polish and Spanish. The Leghorns, of which there are four varieties—the black, brown, dominique and white—are alike in nearly every particular except color of plumage. They mature very early, often beginning to lay before they are five months old, and probably lay a larger number of eggs in a year than any other breed, exceptional hens laying as many as two hundred and fifty eggs in one year, but one hundred and seventy are usually laid by them. The objection to the Leghorn is their high comb and large wattles, which become frosted in cold weather, and the bird will not lay until the frosted part has healed. The young chicks also feather very rapidly, and are very sensitive to dampness. The loss of chicks from rapid feathering may, to a great extent, be obviated by feeding in their soft food pure ground bone meal; do not make the mistake of feeding the bone meal used as fertilizer, and which is prepared by dissolving in sulphuric acid; this will cause liver disease in your chickens Use the pure bone meal prepared especially for poultry food.

There is at the present time no breed of fowls so well adapted to the purpose of egg production as the Leghorn, while the excessive comb and wattles are, to some extent, avoided by selecting those of moderate size for succeeding generations, and these should be dubbed when the bird is about half or two-thirds grown. The operation is almost painless, and if shears are used little blood will flow, as the arteries are thus pinched off. But should you wish to raise poultry more especially for the market, and not depend on their laying qualities or eggs for your returns, we would proceed in a different manner. We should, as in the former case, have access to a good market, or be near a city where the demand is constant, and the supply of choice birds is almost always limited. We have named for size and weight Brahma, Cochin, Langshan, Wyandotte and Plymouth Rock, and from these we would choose our stock, with the addition of the White Leghorn; our first choice for the following reasons: A larger percentage of eggs hatch, and fewer chickens die than those of any other known breed. They make the quickest and plumpest chickens of any breed, and are the most eagerly sought after at highest price by consumers on account of their smooth yellow legs and yellow skin, which, although adding nothing to their table qualities, give the dressed bird a rich, luscious appearance.

For hatching and raising our broilers and market chicks, we would use, exclusively, incubators and brooders. Get good, well-made machines; and just here it is important to know that many incubators which occasionally hatch well are useless and dear as a gift, because they are so unnatural in their operation that the chickens enter the world with constitutions nearly ruined, and can not be raised to maturity. Such machines must be avoided. Don't believe all an incubator manufacturer may tell you about his or other machines. His business is to dispose of as many machines as possible, and at as great a profit as he can get. Also bear in mind that it costs not a little to make a first-class article, whether that article be a reaper, mower, incubator, or any other farm tool. Equip yourself fully with brooders. You can make cheap ones; have enough of them to accommodate your chicks for at least six weeks—nine weeks would be better, and you can raise chickens with profit each and every month of the year. Much more profit is, of course, derived at some seasons than others, but with proper conveniences and arrangements, chickens can be successfully raised amid snow and sleet and the frequent zero of the weather of this country. The hatches of November, December and January furnish small broilers demanded at good prices by the larger city markets. Those of February and March furnish spring chickens, which can also be sold with a good margin of profit. Those of April and May should be your main reliance to replenish your own stock and to keep up the supply of winter layers; the hatchings of June and July for pullets, as supplementary to the above, and which will be laying while the earlier-hatched birds are taking a respite. Those of August, September and October give us the large roasters in January and February. Thus it will be seen that the productions of all seasons of the year are attended with some measure of profit.

In regard to late chickens, we would say that a chicken hatched early in September, whether raised under a brooder or by an old hen, grows faster the first eight weeks of its existence than if hatched at any other season of the year. But, besides these two advantages in hatching late chickens—rapid growth and a good market, there are at least two others which are frequently overlooked. Eggs at that season usually hatch better than at any other, and as the rush of spring orders is over, breeders can spare eggs from prime stock at comparatively low prices.

And now, to sum up the matter, do you wish to raise poultry? Then raise thoroughbreds. Do you wish to raise poultry for eggs? Then the Leghorn is the bird. Do you wish to raise poultry for broilers and spring chickens? Then the Plymouth Rock and the incubator.

POULTRY A PAYING INDUSTRY.

BY J. W. SLOAN, TEMPLE.

[Read before the Crawford County Farmers' Institute.]

Perhaps a word or two for some of our feathered tribe will not be out of place.

As I am a believer of pure blooded poultry, and know that they are more profitable than mongrels, I would therefore insist that every farmer would select some suitable variety of poultry which he thinks would be best adapted to his surroundings, and at the same time the most profitable.

He or she, as the case may be, must be guided greatly as to location of market, and at the same time, should fully decide before selecting any variety, as to whether they desire to produce eggs or flesh for the markets.

If you desire to produce eggs you should select an egg producing variety; if flesh should be your aim, then select one for flesh.

If, however, you decide to produce eggs and flesh, then select accordingly; get two distinct varieties, one for flesh and one for eggs, or, not having room for two varieties, and yet desiring eggs and flesh, get a variety which are good egg producers, and are at the same time a splendid one for flesh, yielding a nice, attractive and palatable piece of flesh when properly cooked.

Before launching your boat out in the poultry business, as to what variety you desire, you should at least try to acquaint yourself with some of the peculiarities of your would be choice.

Poultry periodicals are, in these days, very accessible and never before were they so cheap; so much so are they that not a single farmer, even the most humble one on his ten-acre farm, but what can afford to take at least two good "poultry journals," and by so doing thoroughly acquaint yourself with all details necessary to yourself, and be master of your part of the poultry industry so as to be of the greatest good to your family and surrounding fellow men.

You should know how to build your houses, the size of which will depend as to how many fowls you wish to quarter in a building in order to derive the greatest profit from outlay, material and feed, and at the same time save labor.

It is indeed surprising to see "biddy" searching every nook and corner during the warm seasons of the year for all kinds of worms, bugs, in fact all kinds of insects that are so damaging to the farmer's growing crops, and convert their food thus found into a cash market product that otherwise would be an entire loss.

How is it that so few people, even among the farming class, ever know for themselves what it actually costs to produce a dozen eggs when they are fed entirely and not allowed any range? When wheat is worth $1 per bushel, corn 50 cents per bushel and other feed in proportion, eggs can be produced for six cents per dozen. When the flock has a free range and plenty of it, the feed bill is scarely anything. Hence all profit, or nearly so.

Let us look a little farther and see about what prices are obtained for eggs per dozen. For several years they have scarcely fallen below 10 cents per dozen, and then such prices are only during the hot season, and 25 to 35 cents is not an uncommon price in winter. Now, let us average the price, say at 16 cents the year round, which is, we think, not an unfair estimate.

It is clearly shown that New York City alone consumes daily 2,500,000 of eggs. As an article of food they are nutritious, healthy and very palatable, and in more ways than one they are made ready for the most sumptuous table. If the entire surface of the State of New York was entirely covered with hens they could not lay enough eggs to supply New York City alone. Nor does the State of New Jersey produce as many eggs as its citizens consume. While on the other hand, our State of Indiana is the banner State, producing more eggs than any other State in the Union.

And not all yet. The United States does not produce enough eggs for her people and large quantities are yearly shipped in to our country for actual consumption. Canada alone sends to our markets yearly more than $2,000,000 worth of eggs. No danger of glutting our markets yet. The egg traffic of the United States is large and is increasing each year. In New York City the yearly aggregate transactions amount to more than $8,000,000 on eggs. Chicago, Cincinnati, Kansas City, Boston and other large cities have a proportionately large egg trade. The sales of eggs in the United States amount to more than 60,000,000 dozen each year. Canada alone sends us about 8,000,000 dozen annually, while Germany, Italy and France contribute some of their surplus.

About 25,000 car loads of live and dressed poultry are shipped to New York city alone each year at prices ranging from 12 to 30 cents per pound (capons bringing the best prices), and more than 30,000,000 dozen eggs to the same market.

According to our best authorities there is upwards of 750,000,000 dozen eggs produced in the United States yearly. Quite a nice little item for the consideration of those that say that the poultry industry is a small affair. We actually import about 12,000,000 each year, which we consume, and say at 16 cents per dozen, the average price, the amount paid for eggs that should be produced in our own country would scatter throughout the United States $1,980,000, and give employment to our own men, women and children.

FARMERS' INSTITUTES.

THE FARMERS' INSTITUTE.

BY G. H. MARTZ, MONROE.

[Abstract of a paper read before the Adams County Farmers' Institute.]

The Farmers' Institute has for its objects the preparation of the people for a calling in which they are engaged and better fitting them for an intelligent exchange of ideas, for better methods not only in farming but all of the business features that are connected with farming. This country must look to the rural districts for its best citizenship, and for the lessons of industry and frugality. There can be no question but we are broadening and developing the intellect of those engaged in agricultural pursuits. We are constantly getting away from the idea that anybody can farm; that it only requires muscle and human or physical endurance. But in addition to this necessary part science and practical business qualifications are two essential features for success. Mind and muscle must be combined to attain the best results, not only in farming but in all other pursuits. It is conceded by every true friend of progress that if agriculture shall keep pace with the other rapidly growing interests of the State the very best talent will be in demand and will command the very best price. The subject of Farmers' Institutes—I sometimes think they are not given the attention they demand. Their objects and benefits are not appreciated as they should be. The minds of the farmers must be developed and educated in the line of scientific farming, and it can only be done by reading and attending agricultural meetings, and, best of all, Farmers' Institutes. I find, by observation in the few years of experience in this line of work, that the very class of farmers that the Institute act was designed for are the very class that do not attend the Farmers' Institutes. The question presents itself to the progressive farmer, and the public in general have observed their neglect to obtain the desired knowledge.

How can we better the condition of our brother farmers? How can we get them out of the old ruts and old ideas of farming? The agricultural press has done much and is doing good service to awaken an interest, but many fail to read agricultural papers or attend any meetings where they might learn; they say they don't want any book farming. To all such I say, we want you with us. You can give us your experience whether of success or failure. You can hear the practical experience of others, and we can report our success or failures also; to compare our experience in the past and form plans for improvement and better work in the future. While we are striving to benefit ourselves by receiving information pertaining to our favorite pursuits we are also giving the benefit of our observation and accumulated results. It is our duty to study our business and seek to secure a systematic preparation of the soil; we need to apply science with industry and thoughtful and timely cultivation. The time has come when we must avail ourselves of the opportunity afforded us for training in our life work or fall behind in the race for success. We are constantly warned against the danger of ignorance; knowledge must be applied. Theory in itself is not sufficient; practical experience will open a road to success. We must study conditions, crops, trade, markets, read more, study our condition, work less hours, read the results that are made at our Experimental Station and proceedings of our State Board of Agriculture. While on this subject of Institutes I would favor an amendment to our law governing Farmers' Institutes, and let it partake of some of the features of the law with reference to Teachers' Institutes. Let each county control and manage its own institutes, and the Experimental Station and State Board of Agriculture, and local Farmers' Institutes, should be under the same authority and control. It is very apparent that we must unite on favorable laws to obtain best results.

In conclusion, let us resolve to live within our income. to live independent of the habits and incomes of our neighbors, taking needed rest, enjoy ourselves royally in our vocation, bearing in mind also that a cultivated intellect is better than a superfluous bank account; make the best possible use of our talent and opportunity, and we will have more pleasure. more money and less grumbling.

VALUE OF FARMERS' INSTITUTES.

BY W. F. EVANS, HEDRICK.

[Abstract of a paper read before the Warren County Farmers' Institute.]

Agriculture in its various branches is one of the noblest callings of man, and it is the foundation upon which all other industries of the world depend. From the farm come some of our best men. Some of our best statesmen, financiers, and teachers are to be found upon the farm. And from the farm has come some of our best warriors, and I will say some of our best Presidents. It is on the farm that mankind is nurtured in thought and freedom of action, that is so necessary to the development of all his abilities.

The best mode of farming is being taught in the Farmers' Institute, and through the work of the Institute we are able to get the experiences of the best farmers of the State, and the benefit of our Experimental Stations. And I am glad to say that the women of the rural districts are taking hold, in this great work, and doing their part in making our homes a success, and with their help we can make these Institutes a success, and with good work at the Institutes farming will be a grand success.

Now, when these Institutes cost us but a trifle, we can certainly spend the time to attend them, especially when they come in the winter, when we are not so busily engaged in the work on the farm.

Now, if the farmers will take an interest in the Institute work, and exchange their views on the various branches of farm industry, we certainly can reap great benefits for ourselves, and our neighbors may receive the same benefit if they will attend these Institutes.

The time required for each farmer to try experiments with all of the different branches of farming is too great in this fast age of the world. Therefore, if we would take great pains to give our neighbors the benefit of our experiments in the different branches of farming that we have been experimenting in, and found to be a success, and to be sure to get the benefits of their experiments in such branches as they have tried and found to be a success, we certainly could arrive at conclusions that would be of much value to us, and save us much trouble, time and money. And these Institutes are for the purpose of exchanging our views and consulting with each other, and if we will be prompt in giving our views, or asking questions to draw out the various views of others, we may gain some useful knowledge. But if we stay at home, or come to the Institute and take no part in the work, we will receive no benefit of the work. Such farmers will be behind the times, and will work in the old way, and complain of hard times and nothing to do.

As a class we are too much inclined to self interest, and not willing enough to give our neighbor any benefit of our experience, or information that might be of great value to him, and we forget that when we benefit our neighbor we also benefit ourselves.

Now, the farmers should understand the nature of the soil; the nature of, and the best way to use all of the best fertilizers of the soil; the best way to improve the soil, and the best way to keep it in a good condition, with the least possible expense in money as well as labor. He should understand the best mode of working the soil, and crops best suited to his kind of soil. He should understand what kind of stock is best suited to his locality, and the best way of feeding and caring for his stock; and, also, how to market his stock to the best advantage. And so it is with all of the different kinds of grain, and the different modes of cultivating, harvesting and feeding our crops. Now, in the Institute these points can be discussed, and by so doing we can obtain a vast amount of information that would require years for us to get by our own experience. The great point for the farmer is to know how to prepare his soil for the crop so as to get a good crop of grain, and at the same time keep improving the fertility of the soil; and at the Institute all of these points can be discussed. Then the sociability that will grow out of these meetings is worth more than they cost. So, let us strive to leave the farm in a better condition than we found it; and if we do this we have done our duty to ourselves and to the rising generation.

FARMER'S INSTITUTES.

BY A. W. BROOKS, CHAMBERLAIN.

[Extracts from he Opening Address at the Wayne County Farmers' Institute.]

It is with a feeling of hope and thankfulness that I arise to announce to this audience the opening of the Fourth Annual Farmers' Institute, or school of wisdom and progress. I thank the Cause of our being that the age has arrived when the hewer of wood and the drawer of water and the tiller of the soil begins to think and realize that his intellectual powers can be made a treasure of great wealth to him and to mankind in common, and that he greatly feels the need of that knowledge, which this school is destined to bring to his command and use. As a rule we live far beneath our privilege, because we lack the knowledge that would tell us when to act and how to act, what to do and what not to do. Again, we make life's journey more tedious and sad by learning too much in the dear school of experience. Now to make experience cheaper, we meet here to give others the benefit of our experience, and when fifty or a hundred farmers tell here before a large audience how they have been highly successful in some things and failed in others, there will be none to go away without seeing where he can do some things better than heretofore, and see in his mind bright visions of future success that will stimulate his soul with a new love for his farm and his home. He will see more things to live for, and have less fault to find with his Maker. He will go about his work with a lighter heart and treat everything with more kindness. He will not have lived in this spirit of love and good will very long until nearly every thing with which he has to deal will begin to partake of the same nature. His team will look smoother, his cows will be more gentle, the sheep will not frighten so easily—everything will do better all the way from the chickens to the cook. If you doubt this try it for one year for experience sake, and then report here at our next annual meeting. Permit me to introduce to your intelligence a thought that has lately come to my mind, which if put into practice would make our Institute more interesting and vastly more beneficial. It is something that nearly all can engage in and it will be sure to lead us on into new fields of thought and prosperity. Prosperity unparalleled in the history of mankind all who will engage in this grand work. Let him or her, for we would be glad to get the ladies engaged in this work, get them a scratch book, make a note of all important discoveries in every department of labor connected with farm life. This work carried on from year to year cannot fail to add largely to our stock of limited knowledge in every branch of farm industry. Let every one of us use the pen. For a poet has said:

Use the pen, there's magic in it;
  Never let it lag behind,
Write thy thought, the pen can win it
  From the chaos of the mind.

Many a gem is lost forever
By the careless passer-by,
But the gems of thought should never
On the mental pathway lie.

Use the pen, reck not that others
Take a higher flight than thine,
Many an ocean cave still smothers
Pearls of price beneath the brine.

But the diver brings out the treasure,
And the gems to light are brought;
Thus the mind's unbounded measure
May give up some pearl of thought.

Now let me urge all progressive minds among the farmers to take hold of this grand work and as soon as possible place this school of human progress in such high appreciation of the public mind as to make it far beyond the thought of a future Legislature to repeal the act that gave it birth. Let us not for a moment cherish the thought that this Institute is a superfluity—neither that it can be sectional in the benefits that will flow from it. Any philanthropic mind will readily see that the cities and towns of our country will be equally blessed with the farmer when the crops are all good, for their living will come cheaper and better from a bountiful supply of all the good things that lie in the power of the farmer to produce. For when the farmer has plenty to sell all others can afford to live well.

By all means the country and city alike should give this school their hearty approval and support. For our country is in great need of the best management our united wisdom can devise. Our best efforts should be put forth to stay the extreme conditions of mankind, and bring about that condition where all who will labor shall have plenty and all who scheme to possess great wealth for the sake of power will have to take less for the sake of his own soul at least.

Now what will bring about this much needed reform? Nothing will do it quicker and better than an universal knowledge of the laws of our being and nothing will teach these laws so well as a non-partisan and non-sectarian school such as the Farmers' Institute is, where all classes can meet on one common level, to aid in accumulating that knowledge which will lead to a broader philanthropy, a more universal brotherhood, which in time will produce that ethereal and spiritual condition that will elevate the world to a higher plane of thought and action. Where man can pause for a moment's rest, and look back over the dark, bloody record of past ages, and wonder if it will be repeated, then turns and looks forward again, and feels that a new era is at hand, for he thinks he hears the ring of the hammer that is beating the great weapons of death into plowshares, for peace has come to stay and nations shall learn war no more. Because the spiritual man is developed and he walks in the light that the Farmers' Institute has shed abroad in the land.

Now, in conclusion, let me exhort you to stand by the farmers' school, and cherish it with the best experimental knowledge and the most elevating thoughts that your minds, with the aid of the pen, can produce; for the poet has said:

Use the pen—the day's departed
  When the sword alone held sway,
Wielded by the lion hearted,
  Strong in battle—where are they?
All unknown these deeds of glory,
  Done of old by mighty men,
Save a few which live in story,
  Chronicled by the sage's pen.

Use the pen, but let it never
  Slander write with death's black ink:
But let it be thy best endeavor
  But to pen what good men think,
Thus by word and deed securing
  Honest praise from wisdom's tongue
Which in the end will be enduring
  As the strains which Homer sung.

THE FARM.

BRIGHT SIDE OF FARM LIFE.

BY JOHN C. MEHL, GOSHEN.

[Presented at the Elkhart County Farmers' Institute.]

We believe that farm life has more cheer in store for its devotees than any other occupation that men follow for a living. Childhood, youth, manhood and old age, all may drink of its blessings. The "little brown hands" and chubby bare feet of innocent childhood, and the bounding spirits of developing youth, revel in the delights of opening spring, and budding flowers, and forest melodies. Summer's sunshine, with its ripening fruit, and waving grain, and new mown hay, adds sparkle to the eye, ruddiness to the cheek, and acuteness to the appetite. But the joys of autumn, who shall describe?—when forest, and meadow, and woodland, and hillside, and stream, and orchard, seem to vie with each other to make music for the ear, beauty for the eye, perfume for the nostril, flavor for the taste, and delicacy for the touch. It is then "when the sound of dropping nuts is heard," that the joys of childhood and youth on the farm are unbounded, unlimited, and unrestrained. But winter, even winter, in his icy fetters is welcomed by our boys and girls. See their sparkling eyes and glowing cheeks, and hear their joyous shouts as they gayly wend their way to and from school; defying the cold, and snow, and storm of winter.

What happier man is there than the farmer, as he starts afield in the warmth of the rising sun, his mind freed from all worldly care? See him as he goes whistling along, driving his wellfed team, drinking in the beauties of nature. Surely, happy man is he. But now the sun is nearing the zenith and the cheering music of the familiar old dinner bell comes floating on the breeze. Oh, the joy and the comfort of those inviting chimes. They speak of loved ones waiting, and of table laden with luscious fruit, fresh from vine, or bush, or tree; with light, white, delicate, *home-made* bread; with the rich-flavored butter, churned from *cream;* yes, with all the delicacies, pure, fresh, and *unadulterated*, that dairy, poultry yard, garden and orchard can supply.

There is joy in the soul of the farmer's wife as she goes about her daily duties, mingling her song with the song of the birds,—knowing that kindly hands of husband and sons have "milked the cows, fed the calves, slopped the pigs and weeded the garden." There is joy in her heart as, neatly attired, she rings the bell, knowing that soon she shall meet with approving smile and cheerful companionship around the festal board, where sharpened appetites shall do appreciative justice to nature's bounteous stores, that loving hands have so nicely prepared and arranged.

Then comes that serene joy of a summer evening when the day's toils are over and little ones are quietly romping in the pure evening air. Older ones are reading or uniting their voices in music, while father and mother, in blessed companionship, are once more watching the "kindly light of day" vanish in the misty shadows that are so quietly closing in the pleasant scene.

The most comfortable joy comes of a long winter evening, "when all outside is dreary and covered up with snow." Horses, cows, sheep and hogs are well fed, bountifully bedded and carefully stabled. The family are gathered in the living room, where there is warmth, and light, and cheer, and comfort. All worldly cares are cast aside. There is a plentiful supply of good literature in the shape of books, papers and magazines. Perhaps, with mother or daughter at the organ, all voices join in cheerful song. Oh, those blessed winter evenings on the farm!

But the most peaceful joy comes when the battle has been fought and the conflict won. When dear old grandfather and grandmother are enjoying their well earned rest in the easiest chair, occupying the most favorite nook in the familiar old home. See the dear old faces all written over with a peace that speaks of a "life well lived" and a "work well done." They seem to be waiting —only waiting—quietly, peacefully, to hear the welcome call, "come home." Yes, there is a "bright side to farm life."

THE FARMER, MERCHANT AND MANUFACTURER.

BY A. M. SINKS, CONNERSVILLE.

[Abstract of a paper read before the Fayette County Farmers' Institute.]

Farming is the starting point of all business operations, and the farmer is the only producer who brings new capital into the business world each year, for its new and continued operations. The manufacturer simply changes the form of the material he receives from the farmer or miner in the start. True, the article he produces is new, but it is composed of material that was in existence before the hand of his labor transformed it. It is not so with the farmer. The material or productions he brings upon the market each year are entirely new. The millions of bushels of wheat, corn, rye, oats, potatoes, and the millions of tons of hay, cotton, flax, tobacco, fruits, etc., were not in existence the year before in any form. It was "without form and void." It is all entirely new, and this is the only source of new blood direct from the hand of God himself thrown into the veins and arteries of business, giving it new life and vigor, and refreshing all its channels that were running dry from the draughts of the operations of the years before. The merchant is a mere convenience as a distributor of this new material, or capital to the hands of the consumer. His business depends entirely upon that of the farmer and manufacturer, and when their productions fail or run low, he is crippled, or closes his doors accordingly. Hence we see that the relation held by the farmer to the merchant and manufacturer is that of a feeder, or starting point, or the foundation upon which they build.

The operations and productions of the farmer being the starting point annually for all kinds of business industry, "it follows as the night the day" that when he is prosperous and happy, and sees good times, the merchant and manufacturer, and all others are correspondingly happy, and the times are good. But when the farmer is oppressed on account of short crops, low prices, bad money, bad politics, or bad legislation, the wheels of all other kinds of business are necessarily clogged, the times are hard, and the depression reaches and effects all branches of industry. Hence, good or bad times always start with the farmer.

These three great branches of industry absorb and consume nearly all the business operations of the world, and go hand in hand like capital and labor. The one is almost useless without the other, and the highest point of prosperity and happiness is reached when the greatest amount of good feeling and co-operation exists between them.

Live and let live is a fundamental principle of happiness, prosperity and Christian fellowship, and when the promoters of these three great branches of business conduct it with reference to that principle, mankind rejoices, and we have good times. But when either of the three wants it all and is not willing to divide, or when bad men leave the pleasant ways of honesty, and covetously, if not criminally, try to grab it all, the wheels of prosperity are again clogged, the placid brow of honesty knits with frowns, and we all see hard times.

In this respect our laws are faulty. They should be so framed that speculation could not run the price up or down under any circumstances, to gratify or feed their selfish ends or covetous desires without bringing upon their heads severer penalties than they would be likely to risk. Such laws have been before Congress, but the members lacked the backbone to pass them. We hope some future Congress will be good enough to pass and secure such laws for the benefit of their constituents, and the best interests of the country, in the face of the wonderful and well-known influence of a packed lobby of unprincipled and covetous speculators.

THE FARMER AS A PRODUCER—HIS FRIENDS AND HIS ENEMIES.

BY J. A. M'FARLIN, PLYMOUTH.

[Abstract from a paper read before the Marshall County Farmers' Institute.]

On looking back over more than thirty years of life and labor, as boy and man, on a farm, it seems very plain to me that I have not taken the best advantage of the opportunities that have presented themselves during that time. But these neglects of mine, and the fact that I have not been one of the eminently successful farmers, have not soured me on farming, and if I had my life to live over I am quite sure I should select farming as my occupation I believe that when a farmer is not reasonably successful, when he has health, it is his own fault.

I believe the boys who are leaving the farm, thinking they will be more contented and successful in some other occupation, are apt to be mistaken. The opportunities to make a mark and a good living in the world are as great in some of the several branches of farming as in any other occupation.

Public land is about all taken up, and the increase in production that must come to meet increased demand, instead of coming from new and fertile western land, must come from a more intelligent cultivation of the soil, and the use of more skill in breeding and feeding domestic animals. As old farmers, we must do all we can to meet the requirements of the better ways, by attending and taking part in these institutes, subscribing for and reading agricultural papers. and by all other ways possible. But we can only hope to be entirely successful when the boys prepare themselves for these duties by taking an agricultural course of studies.

A farmer's duties are very different from what they were thirty or forty years ago. Then muscle was the essential requirement; to-day it is brains. At that time it required strength to farm; now it requires skill. Skill in preparing the soil, skill in planting, skill in cultivating, and more skill in breeding and feeding.

In those days it did not require as much thought to market the products of the farm as it does in these days of combination and close competition.

Every farmer worked with his teams in the timber during the winter months with profit. The timber has gradually disappeared. The teams stand idle through the winter. The profits, if they come at all, must come from the soil, and to that end the farmer must give his most earnest thought and intelligent labor. By intelligent labor I mean this—that the time should be divided between manual labor, study and rest, so as to produce the best results.

I doubt whether a man is capable of his best mental efforts when he is very tired physically.

Take enough time to prepare the best plan possible in your work, then see that it is executed, if you have to execute it yourself.

When things begin to go wrong and get tangled, do not get excited and jump in and work yourself tired and sick; stop and think. Thought has lifted many a man out of difficulty.

A study of the changes that are going on around us will convince any one that every farmer should be a specialist; that he should select a particular branch of farming and pay especial attention to it, in fact, try to become an expert in it.

At first, in the shops, a hand worked on all parts of the article that was being made. They have found that it is better for good work and economy of time to give each hand a particular piece to work on. It is the same in farming. Life is too short for a man to become a good grain grower, an expert stockman in all its branches, a skillful dairyman, a successful truck farmer, and equally good with fruit and poultry.

I believe that each farmer should consult his natural inclination in connection with his surroundings, and stick to it. We would be more successful as producers than we are now.

I do not want to be understood as meaning that a grain grower should grow no stock or truck, or a stockman should raise no grain or fruit, but rather that one particular part should have the chief attention, and the others should be incidental. After you have made your selection remember that the amount and quality of your production depends entirely upon yourself.

Nature has not limited you in amount or quality. Nature is the farmer's best friend. It loves to be treated intelligently. Its laws *must* be obeyed. Then it does not limit the amount of production by rigid lines, saying, so far you may go and no further; so much I will help you to produce and no more. But the amount and quality depends entirely on the amount of skillful labor applied by the producer. Many states recognize this fact, and furnish various ways by which the farmers can learn to become more proficient producers.

Our own State maintains its experiment station and gladly sends the results of the experiments tried there, in the different ways of sowing and planting, cultivating and feeding, to each farmer in the State who wants them. It pays the expenses of an Institute in each county in the State.

Now what have the people a right to expect of us in return for these privileges. They have a perfect right to expect that we will take advantage of these opportunities to learn to become larger producers, thus helping ourselves and unitedly making the State more prosperous and wealthy.

If by reason of these means, and the meeting here and giving each other the benefits of our experience during the past, we should increase the production in this county $25,000 we would all be gainers.

The Assessor would find $25,000 worth of property more to assess. The State with its levy of eighteen cents on the hundred dollars would get its $45 back in taxes, and we would be $25,000 ahead.

I do not think this is impossible, and to show you the possibility of increasing production, by study and skill, I want to tell you of a friend and neighbor of mine who bought a farm some years ago that contained two acres of as springy, boggy marsh as you would find in a day's travel. What it produced was not worth more than $10 a year. He tilled, manured, irrigated and cultivated this piece of ground until it produces wonderfully. He sold from this two acres the past hard year $1,000 worth of produce.

There are several hundred of us, and if each one will do one quarter as well as my friend, we will have a boom as far as production is concerned.

After you have taken all things into consideration, your likes and dislikes (for I believe a man is more apt to succeed in a business he has a liking for, than in one he dislikes), the soil you have to cultivate, the markets and the amount of capital you have to invest, and have selected your specialty, or you have concluded to be an all around farmer, put all the ability and industry you can command into the business.

While there is no work on the farm that pays better than thinning corn, it is the most apt to be neglected, for two reasons. It should be done when it is up out of reach of cut worms and birds, and at that time it is a very busy time on the farm. Then it seems almost wicked to destroy a nice stalk of corn if it does stand thick. A farmer only gets the nerve to thin corn well after he has thorougly studied the effect.

This paper is getting lengthy, but I want to say a word about marketing, and our business relation with the rest of the people. The farmers are but part of a great people, and each part necessary for the welfare of the whole. Some parts more essential than others. We flatter ourselves that we are a very necessary part of the structure, and just why the prices should be fixed for us both ways, is more than I have ever been able to thoroughly understand. When we take the products of our farms to market we find the prices established by some one other than ourselves. In buying what we need in return, we have very little to say about the price. It would seem more fair if we could fix the price one way at least.

Every person that consumes the products of the farm is so far the friend of the the farmer. Many consumers are great aids to us. We need the physician to keep us in health. The dentist to keep our teeth in shape for business. The ministers of the gospel to keep us straight spiritually. The teachers, editors, authors, etc., to brighten us up mentally. The lawyers and judges to keep us in line with the law. The merchants as a medium of exchange between us and other toilers.

We use the millers to grind our grain, but most of us think when they charge us more than one quarter of the grist for grinding, they are piling it on a little too thick.

We surely need the grain buyer, who, by paying especial attention to the trade, and selling in larger quantities than a single farmer could, can get better prices.

But that is no reason why farmers, all over the country, instead of keeping their grain at home until a demand calls for it at a fair price, should store their grain with the buyer, taking a receipt, which allows the grain to be shipped, and often sold. The effect is that the markets are always flooded. Every wheat buyer is a bear on the market. He has no inducements in the way of better prices for the producer and less profit for himself to offer for the grain. He has it, and has only agreed to pay the market price when the farmer wants to sell. Who is the judge of what the price is at the particular time of selling? The buyer largely. He is personally interested in having it low. We should find no fault with the buyers. They can't compel us to store grain. It is the farmer's own fault. The grain should be kept at home until a price is offered that he is willing to take.

In conclusion, I have made up my mind that while nature is the farmer's best friend, our own careless business habits are our own worst enemies.

TENANT FARMING.

BY FRANK MOSSMAN, TREATY.

[Paper read before the Wabash County Farmers' Institute.]

If you have all the land you can farm yourself do not buy any more that you may test my theory of tenant farming. But to those who are already "land poor," and especially where the farms are separated, I suggest a system of management in partnership.

The plan is comparatively simple, but should be preceded by a carefully drawn contract setting out the duties of landlord and tenant. The live stock, implements and supplies for the farm are owned in partnership. The tenant does all the farm work, markets grain and live stock, cuts the weeds, hauls out the manure, keeps the fences in repair and the ditch out-lets open. The landlord builds new fences, buildings and the ditches, and keeps the buildings in repair. Each furnishes one-half the seed used. If the tenant needs help he pays for it.

I prefer this plan because a man has every inducement to take good care of everything and to keep up the fertility of the land. While partners may vary their line of work in as many ways as an individual, my policy has been plain farming in preference to dairying or breeding of pedigree stock. I raise wheat in large quantities, and use the straw for bedding beef cattle and horses. We raise our own pigs, which follow the cattle and are sold at from nine to ten months of age, at from 200 to 240 pounds weight. I am raising colts, Percherons and drivers. I buy my feeding cattle in the fall and sell any time before July first. We do not handle sheep because the cattle are so much better to work our straw into manure, though it may become necessary to summer pasture sheep on account of briers and weeds.

The landlord should be cashier of the firm, and should pay all bills. When the tenant pays for anything he should take a receipt and turn in same on settlement. I find such a plan of management very easy, and rather profitable.

Very much depends upon getting a good man--not always an easy task. Unlike Hiawatha, I'd choose my neighbor's homely daughter, and her husband.

Too many landlords neglect their farms and their men. A man enjoys and appreciate the owner's interest and appreciation, and very often stands in need of advice, which should be kindly given. I furnish good barns and homes, a garden, keep for one cow, and a share in the orchard. Such partnerships are usually closed by a public sale. My own experience in this line is very satisfactory and convinces me it is the farmer and not the farm which is not a paying institution.

BUSINESS METHODS IN FARMING.

BY PRESIDENT W. T. STOTT, OF FRANKLIN COLLEGE.

[A paper read before the Johnson County Farmers' Institute.]

After a somewhat full introduction, he proceeded to discuss the theme as follows:

In the pioneer days in this country, if farmers could only get a few acres opened to tillage they felt themselves safe, at least from starvation. The virgin soil was so rich that if seed were only planted a fair crop would certainly ensue. It was not uncommon to see a fair yield from seed that chanced to be scattered in the woods or by the wayside. The soil seemed to be aching to nourish and develop and mature vegetable life.

Besides, the farm was not the only source of sustenance. The forests were full of game, and the rivers and lakes abounded in fish. Again, the investment in land in the early days was very light. The best could be had for $1.25 per acre, so that a tract of 160 acres represented but $200. A very meager crop indeed would equal six per cent. on the investment, and, besides, no farmer was limited to his own land. His cattle and his pigs had free access to many townships of forest or prairie, or both. The acorn and beech-nut mast was all that was needed to make fat pork, while the poor calves turned out in the spring with a bell on the leader, came home in the late fall fat and flourishing, the choicest veal. To-day those townships of grass and mast are gone; the wild game is gone, and the cheap land is gone. The price then paid for 160 acres is now paid for two, or, at most, three. One hundred and sixty acres represents an investment of $10,000 to $14,000. It takes considerable farm product to yield an amount equal to six per cent. on the investment.

Then there were no taxes, or next to none; now they aggregate from one to three per cent. of the value of the property. Then neither grains, fruits nor live stock were subject to blights and diseases and parasites; at least, they were rare. What farmer to-day is not made quite well acquainted with blight, and rot, and weevil, and chintz, and cholera, and all that?

Again, the wants of those times were comparatively few. The farmer did his own shoe-mending if not shoemaking, his own blacksmithing and his own carpentering. The farmer's wife made soap, made the linen cloth for the summer wear of her family, and woolen cloth for the winter clothing, and she and her daughters made up the clothing for both, while the sons whittled out the axhandles and made or mended the harness, besides plaiting straw for summer hats, and provided coonskins for winter caps. The library did not need a separate room nor a separate case, for it consisted of only a bible, a hymn-book and Webster's Elementary Speller. The only musical instrument was a whistle made from paw-paw shrubs in spring when the sap was "up," and the corn-stalk fiddle, which was made in the late fall. How multiplied the wants are to-day! There is not a farmer here to-day who does his own mechanical work, nor does the wife of any one here make cloth or clothing for the family, except to a very limited extent. Most of our farmers have organs if not pianos, and libraries, and nicely fitted parlors, and carriages, and extensive farm machinery, and fine breeds of stock, as well as the finest cultivated fruits, grains and flowers.

I have now said enough to convince everybody that the essential conditions of life have wonderfully changed in sixty years. But what of it? This, the farmer of to-day must meet these new conditions or go under. The farming of to-day takes lots of brain as well as muscle. The farmer must fit himself for the employment of business methods. If farming ever succeeded by haphazard methods that day is past. Take the matter of the soil. It is no longer able to yield a full product without receiving aid. What are the best fertilizers and how best applied? It is not certain that the fertilizer which will make the next crop luxuriant, is, after all, the best. The farmer must make his experiments on lines of induction that take in the *long run* rather than the short. Shall the mercantile fertilizers be used on the same ground year after year? Shall they be used each alternate year? Shall barnyard fertilizer be used with them or alternately with them? These questions are all before the farmer of to-day and he must make exact experiments, noting all the results. In his inductions he will be greatly aided by a liberal knowledge of chemistry, botany and geology. In fact, without a knowledge of these his experiments can not be very exact and therefore not very satisfactory.

We have not yet learned all that can be learned as to the rotation of crops. We know about the rotation, wheat, clover, corn, but we do not certainly know that there is no other order equally good or better. Nor do we know from exact experiment what kind of live stock pasturing a field will most rapidly fertilize it. It would seem reasonable that inasmuch as carbon is more and more being thrown into the air by the consumption of coal and oil and gas, as well as by the breath of a constantly growing number of animals, our main source for enriching the soil must be from the air. As yet we have found no plant whose leaves will gather it for us as quickly and in such large quantity as red clover. This plant seems to have two great advantages—its leaves are able to catch a large quantity of the carbon gas, and its roots are very persistent in penetrating into the earth. But there may be plants far better. We haven't been looking for them very diligently. Again, it may be that we have been cultivating crops that exhaust the soil mainly along one line. May it not be that there are other grains, or roots, or tubers that would make their drain in some other line, a line in which our soil is yet quite rich? Or may it not be that with us, as well as with those who live on the Pacific coast, or in the south, certain fruits will be a more profitable crop than grain? When we learn by spraying and otherwise to keep fruit trees free from insect pests, it is quite probable that apples, pears, peaches, apricots, plums, cherries, etc., will yield us an income even greater than we now obtain. Small fruits also command a fair price in nearly all markets, but as yet farmers scarcely depend upon this source of wealth at all. When it comes to experimentation with live stock, the interest in study increases and so do the difficulties. What is economical feeding? What condition of fineness of food, and what temperature of food and water, what temperature of stock barns, how much exercise? These and a hundred questions like them farmers have not yet answered, nor can they answer them off-hand. A long series of accurate experiments will alone give the true answers. I remember to have made one simple experiment. In winter I gave my milch cow warm water instead of cold, and the increase in milk was very perceptible. But I do not know the exact temperature of the water, nor do I know the exact increase in milk, and I only had one cow. Before a farmer could lay down a law for giving warm water to milch cows, he must make a great many experiments under many different conditions. And the matter of breeding is still more complex. Haphazard breeding will certainly fail of high success. The subject has been studied somewhat by a few specialists, but the majority of farmers would confess at once that their judgment was not very valuable. All the principles of physiology and anatomy have a place here, and without them there would be only confusion and failure. We know that cross-breeding is advantageous, but we know little more.

Again, many a farmer can assure us that, on the whole, his farm has given him a net income of a thousand dollars, and that is all he cares for. But is it? He has grown corn, and wheat, and hay, and hogs, and cattle, and sheep, and, possibly, fruits. Some one of these products may have been very profitable, while others were only moderately so, or not at all. Say the average gain was seven per cent. That of some one thing may have been twenty per cent., while the others ranged from one to five. Now, should he not know just how profitable each was? But he asks how can he? He gives the farm credit for all it yields, and charges it with all expense and interest. Well, he can not by single entry, but he can with double entry. By the latter he can keep an account with each main line of industry, and so can readily see which is profitable, and to what extent. As yet not more than one farmer in one hundred keeps double entry accounts. Is it not a fact that few keep exact accounts with their business at all, that is, in the thousand little details that really make success. It is a well-known fact that many men who leave their farms and come into the towns and cities and engage in merchandise, fail at length. And why? They have vigor enough, and they have honest purpose, but they have never had exact business methods. The merchant who knows his business is extremely exact as to all details. Boxes and barrels, nails and cord, must all be taken care of, and weights and measurements must be like Shylock's pound, just so much, no more, no less. We city people like to buy potatoes of the farmers, for they will give us an even bushel, and then several more pounds, "for good measure." But if the grocer did that, instead of making a few cents on each bushel, he would lose. The merchant must use exact business methods; and the farmer would greatly profit by exactness in all his business methods.

Nor is the least advantage that of a close study of the markets. Of course live-stock dealers and large dealers in wheat and corn must keep right up with the markets, especially the markets at the great business centers. Why shouldn't the farmer and the farmer's wife study the markets just as closely. Many a good housewife the past fall sold her turkeys to hucksters for four to six cents per pound, whereas, if she had only known it, she could have taken or sent her turkeys to Indianapolis, for instance, and gotten a third more, without question.

Then there is the subject of the greater conveniences for work on the farm, and in the house. The old broad fireplace is out of the question, for there are no forests to supply wood. We must heat our houses some other way. What way? Well, if we live in the gas-belt, we well know in what way. But if we do not. If gas is found to be easily regulated, and neat, and all that, why not have it on the farm. Coal oil will doubtless be a neat and cheap fuel. Shall we not be awake to its use. And if in the city it is convenient to have cold and soft water at hand in the kitchen, and a slop drain leading from the kitchen, and the rear of the lot on which the dwelling house is built just as neat and sweet as the front part of the lot, is it not just as convenient to have all these things on the farm?

And then isn't it wide awake business to have a library and reading room in the farm house? Does some one here interpose that it isn't business, of course, for a library and reading room are expensive, and when the young folks get to reading they neglect their work. Well, let us see what makes the difference in the effectiveness of labor. Does not intelligent labor always lead ignorant labor? Is skill and foresight and economy necessarily associated with mental dullness? We know that it is just the opposite. Effectiveness of labor depends also on the general cheerfulness and hopefulness of the laborer. Now, when your sons and daughters drink the inspiration which live books and magazines and papers impart, are they going to their tasks in the house and in the fields like galley slaves? So far from it, that now new skill pervades their fingers and new purposes their hearts, and all life and labor are intensified and sweetened. And besides, isn't it a matter of just pride to have our farmers' sons and daughters, having caught the higher inspiration at home, at length come to the front as leaders of men in the great thoughts and deeds which make a nation to be what it is among the nations of the earth? Was it worth anything for Ebenezer Webster to have had books in his New Hampshire farm house, where his son Daniel got his first motives for the colossal greatness which made him the glory of every American? Was it anything, that in that pioneer Hoosier cottage Thomas Lincoln had even a few books, to which his son Abraham might have access? Such men as these make a country great, with a greatness as far above mere material wealth as the palace of marble and gold is above the wigwam of the savage! Do not business methods suggest food in the home for the intellect and the taste and the heart, as well as for the body?

Let us make one more suggestion in the line of business methods. Has the farmer—as a farmer—any interest in the support of Christianity? Is it economic or not for him to help in building church-houses and supporting Christian ministers? Does any one say that what is given from the farm for such purposes is just so much thrown away? Let us see. What makes a farm valuable? Good soil, good drainage, good improvements in general, proximity to market, school advantages, and a quiet, industrious, peaceable, brotherly neighborhood. But has the power of Christianity any vital relation to the quiet and industry and brotherliness of a neighborhood? The most desirable farms in this county are not those with the blackest soil necessarily. I know some neighborhoods where I should like to live, and have my family live. So do you. Where are those neighborhoods? They are where God and His word and His church are most honored and loved. *Business methods* in the large sense, pay on the farm.

FARMING AS A BUSINESS COMPARED WITH OTHER INDUSTRIES.

BY A. O. LOCKRIDGE, GREENCASTLE.

[Abstract of a paper read before the Putnam County Farmers' Institute.]

Comparisons are always favorable or unfavorable, or both with a preponderance. Farm work, as a rule, is much harder, and at certain seasons more hours a day are involved than in any other occupation except railroad business or the practice of medicine.

The manufacturer of nails or the weaver of cloth can go steadily forward to the completion of their output regardless of the weather, for protecting roofs are overhead, but with the farmer the weather is an all-important factor; it can make or mar his crops, and he must patiently endure delays, devastations of floods, incursions of insects, and other discouragements whose names are legion throughout the whole year.

It is easy to note the difference between the manufacturer and the agriculturist, with the mercantile advantage in favor of the former, for while the manufacturer produces his wares with labor-saving machinery and experiences only the vexatious details of selling them at remunerative prices, the agriculturist must contend with drouth or excess of rain, with pestilential insect or other unexpected calamities, until the crops are matured, only to enter immediately thereafter upon the difficult task of finding a market for them.

The isolation of a farm is unpleasant and sometimes even unprofitable. Then, too, one is so wearied by the day's toil that he does not seek the society of his equals in the evening but remains at home, and so feels the loss of fellowship with those who would be congenial. This makes against the farmer, for he not only loses the magnetic contact with congenial spirits but also that delightful recreation from toil that we all need—that daily change that is the spice of life, and which is a pleasure that men in most other branches of business have interwoven all through their duties. This isolation and consequent contraction of social life is more keenly felt by the farmer's family than by himself perhaps. To them it become at times almost unbearable.

Farming is not so remunerative, proportionately, as other industries. The miller, the weaver, and the manufacturer generally, by reason of their protective associations which are strong and all powerful, can keep the quotations for buying raw material far enough under their selling scale to annually realize good profits in their respective output; but the farmer, floating alone upon the financial sea with his year's crop of cereals or fattened stock, without the strength that lies behind systematic, well-directed organization, is left to aimlessly drift, and finally either meet disaster upon treacherous rocks or seek anchorage in the first haven, be it friendly or otherwise, that looms above the tireless waves. The manufacturer can control the expenses of his establishment, which is a very important factor, and can put his finger upon his financial position at any season of the year, which is another factor scarcely less in importance; but the farmer, by reason of a whole year, or nearly so, being required to complete his output, never knows what is ahead until his productions are cashed, and, mind you, somebody else makes the price at which he cashes.

It is entirely unnecessary to talk to the farmer about the impetus of energy, economy, close observation, practice of the best agricultural suggestions, etc., to win success on the farm, for such elements of power are used there just as faithfully and intelligently as like effective powers are practiced in other lines. No one seeks to disparage such advantages; none of us ignore or shirk from such obligatory claims. But the question does not rest here; has in fact but little to do with it when surveyed from the common standpoint of value received, but instead swings as surely as the needle to the north back to the proposition that farming does not pay in proportion like other pursuits. But it is not pleasant to contemplate the unfavorable side of anything. Let us look at the favorable side of farming, for it has as bright a side as any occupation you may name.

Farming has not that "everlasting grind" about it that keeps men the servants of the public, and wears them out at sixty years of age. It is a life of healthful employment, recreative change and recuperative activity, even though it be toilsome and monotonous at times, so that the mental and physical powers, so far from being wasted and worn down, are constantly building up, and are capable of fresh impetus even into advanced age. Skillful management, though the per cent. of gain be much smaller, will make peace and contentment on the farm, and such blessings like good health are above the price of rubies. Peace and contentment, who would not eagerly reach for them? Who would not feel that they possessed inestimable blessings if their grasp but closed upon such mighty forces? Yet the king upon his thone can not clutch them; the painter can not woo them with his brush; nor the poet with his sweetest song; nor the orator with his loftiest eloquence. They elude the grasp of the highest and lowest, but abide upon the hearthstone of the farmer in their freshest, fairest fragrance.

There is another consideration that is all important, and far outweighs those previously mentioned. Through its kindly light I can see the advantages of farming as compared with other industries clearly and convincingly. But its gentle reminder does not come to me in its fullest meaning in the busy streets of he city, where the roar of trade fills the air with its discordance; nor in the courts, where men sometimes quibble over points of law with no thought of justice; nor in the marts of trade, where might makes right, and neighborly kindliness is a forgotten virtue. But it rushes upon me in all beauty and its promise out on the old farm, where peace and contentment dwell, where the sun shines brightest and best, where the scent of the blooming clover floats down the wind with the songs of birds, where seedtime and harvest never fail. I can see, as it is so vividly and instructively seen nowhere else on this broad earth, the wisdom, the watchfulness and the unwavering purpose of Him who holds you and me in the hollow of His hand.

FUTURE OF AMERICAN FARMING.

BY MRS. WALTER RINGO.

[Extracts from a paper read before the Clay County Farmers' Institute.]

Another and not to be overlooked advantage in the future farming of our country, is the perfecting of our public highways, making them of national admiration. The bettering of every other system of transportation about us leaves little incomplete excepting the country roads, which interest farmers more than any other class of people. On the economy of good roads I quote from the "Chicago Graphic:" "It has been estimated that the farmers of the United States pay the enormous sum of $60,000,000 every year for the transportation of produce and grain to the nearest market place. Under the most favorable conditions wagon transportation over the average road costs from 15 to 20 cents per ton each mile. During part of the winter and in early spring the roads are usually impassable field work is out of the question, and nearly 18,000,000 draft animals have to be kept in idleness, causing a loss of at least $57,000,000. From figures recently prepared by Mr. John M. Stahl, an authority on highway improvement, it is learned that the establishment of good roads would save the farmers of the United States $500,000,000 a year—a sum which would extinguish the national debt in three years. A system of gravel and macadamized roads, built by competent men, is needed in every State of the Union. The Legislatures of a number of states have shown a disposition to aid the advocates of good highways. Soon we may expect the passage of bills providing for the inauguration of the work. But before the movement receives the hearty support of the farmers they must be convinced that the actual distance from farm to market is not to be measured by miles but by the character of the roads, and that the poor dirt roads are a tax exceeding in volume every other burden borne by the rural population. At the same time a crusade against narrow tires should begin. No matter how well made a road may be the tires now in general use would ruin it in a month. In France, where road building has attained a high state of perfection, no tire less than six inches in width is countenanced. A tire twelve inches wide—and such tires are not uncommon in Europe—enables one horse to do the work of two, and at the same time is a perfect road-maker. It crushes the macadam into a compact mass and solidifies a gravel road-bed. The cost of building a mile of macadamized road is said to be from $3,500 to $5,000, and of gravel road from $1,500 to $2,000, according to grade. Either of these amounts could be saved in one year in actual dollars and cents to say nothing of the appreciation in value of farm lands, which is estimated at 20 per cent."

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It has been prophesied by students of economics and social science that the next few years will develop greater strides toward advancement in agricultural conditions than in any other line. Already the conservatism attributable to farmers, and heretofore a hindrance to their own rapid advancement, has in a great measure been overcome. History tells us that in all great successful revolutions previous attempts have been made to accomplish the same aim unsuccessfully, yet all having a tendency to accomplishment of the desired end. When the proper time comes, all things ready, the conquest is ever easy.

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Agricultural education will play an important part in the future development of American farming. A great deal has been done in the direction of scientific training of farmers in the past thirty years. It is generally agreed among farmers that the successful agriculturist at the present day needs a scientific and practical education.

The sciences of chemistry, geology and botany lie at the very foundation of farming. Of course every good farmer really knows a great deal of these sciences as the result of his own and his ancestor's experiences, without learning them from books or professors. The farmer seeing what has often been accomplished by really expert knowledge of science connected with agriculture, sensibly desires that his sons shall know as much in starting out in farm life.

How great a science the successful practice of agriculture really is may be gathered from the branches of knowledge taught in one great agricultural school. These include besides "English and mathematics," surface, geology, anatomical and technical botany, physiology and anatomy, veterinary medicine and surgery as applied to domestic animals, the principles of land surveying, leveling and practical mechanics, agricultural economy and geography, and theoretical mechanics and elements of mechanism, to which electrical engineering also has been added.

There is in fact no profession nor trade which exacts so much of a man, nor requires that his knowledge shall lie along so many lines as that of the farm. That our farmers are well aware of this is shown by the efforts which they have already made and sanctioned toward a general system of agricultural education.

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In these days of diffused education every home requires a library quite as much as it requires a parlor, reception room or kitchen. A place to keep books is one of the first essentials in imparting a tone of thorough refinement to a house. If you have not a special room for them no matter, the books themselves are of first importance. Among its first essentials must be a good encyclopedia. There are ever arising occasions when the most intelligent finds it advi-able to go to some authority in order to get things straight in their minds. A dictionary of dates is indispensable, as is a compendium of familiar quotations and a reader's handbook. The very best attainable lexicon should be in some accessible spot, where the children may form the habit of consulting it whenever doubt arises as to the proper spelling, pronouncing or meaning of a word. You need not buy them all at once; as a library is like a beautiful garden—it grows by cultivation. In a good and well chosen home library there will, by degrees, enter separation and adjustment. One shelf will hold volumns of history, another will be devoted to biography, another to poetry, to travel, to essays. 'Tis no wonder one is sometimes at a loss to know how to keep up so many really good magazines and papers at only a nominal cost, while all the time books keep tumbling out of the presses faster than ever. One can not keep up; but if one will but look into one's own mind and honestly examine one's main purpose, the books one ought to read will not hide themselves.

If one wishes to make the most of his day he must read his newspapers with intelligence, doing it quickly, while the mind is fresh, wrestling the news out of them like the meat from a nutshell and discarding the rest. One must have system about his reading to read to the best advantage.

Not without effort, perseverance, faith, can we hope to reach these future heights, nor was it so intended in the creation. Is it not said, "By the sweat of man's brow shall he eat bread?" How many are endeavoring to escape this rigid infallible rule. The pearls are found in the bottom of the ocean, the gold in the crevice of the rock far up in the mountains, the coal under the surface, the electricity in the air. So with us, the future we seek is worth the searching; with all our wonderful progress we are only at the threshold of our achievements. So the future is but to-day seen through a powerful telescope whose lenses are duty, industry, ambition, faith and hope. Looking through these to the future we see a beautiful picture of the possibilities of American farming.

To-day all the world looks across the seas with amazement and admiration at the wonderful achievemennts of our country. We should endeavor with renewed energy to promote the advancement and elevation of our vocation, with confidence in the knowledge that we have our handmaiden, nature, with her boundless stores of blessings, rains, dew and sunshine, confident that we have a great country founded upon great and lasting principles.

When we consider the vast strides that we have made as a nation in but little more than a century, we should take fresh heart and courage, confident that the future will show even more splendid results than the past, if we be but true to ourselves and to the standards and ideals that have made us the wonder and admiration of the world.

GENERAL AND MISCELLANEOUS.

IMPROVING THAT PAYS.

BY DR. C. A. ROBINSON, FOUNTAINTOWN.

[Abstract of a paper read at several Farmers' Institutes.]

As we travel down the path of life too often we are apt to regard it as a corduroy lane rather than an imperial highway, and we go stumbling along with heads bowed down and shoulders bent, thinking only of the ills that we imagine are likely to befall us at every step. Too often we search for the darkest side of the picture and grovel along as though we were thoroughly convinced that we are predestined to come to some disastrous end in spite of ourselves.

I say this is too often the case, hence we need to improve very much in this particular. Such improvement pays, and pays well. The bass darts swiftly through the clearest water, while the carp buries its head in the mud and filth. The eagle soars high in the light of the sun, while the vulture gorges himself to gluttony on the foulest carcass he can find.

Who shall write the history of coming generations, and what shall he say of love and affection as it exists between father and son, mother, brother and sister, in that day, yet have we halted in our headlong rush through life to consider who is to be the corner stone of that history? Have we considered that the superstructure of then will be raised on the foundation of now? You will, whether you desire it or not, assist in the development of character all your life. Can we not lend this influence to the improvement of humanity in the future as it has been improved in the past? Will it not pay us to do so?

By your daily walk, by your every action, word or thought, you will cast some metal into the great crucible from which is to be moulded a human character. Shall it be said of the farmer that he ruled his household by love, or that like cringing curs they cower before his strong arm in fear of bodily harm? If the former, then the bricks he lays in the walls of the social structure of the future will be as granite against which the beating storms of the ages will break themselves into atoms, while the house grows stronger and stronger. If the latter influence obtain, if it be written over against the farmer of the future, that not a kind word, not a warm impulse, not a tender heart is nurtured under his roof, then will the historian veil his eyes as he records truthfully and impartially the dark and deadly deeds that go to make up the history of the times.

To-day the flight of mankind is upward. Shall it ever be so? What can we do to help improve the world, and will it pay to do anything? Look into the worn and haggard face of that father, my children! How patiently he bears his burden, and all for the sake of you. Is there not some little deed you may do to render his life more pleasant? Remember—

"Our father's growing old, John,
His eyes are getting dim,
And years are on his shoulders laid,
A heavy weight for him.
But you and I are young and hale,
And each a stalwart man,
And we must make his path as smooth
And level as we can."

Will you do this? Will you strive to make the last days of father to be his best days? Of a truth I tell you there is never a prouder moment in the life of a father than when his growing up son takes hold of his hand and gives it an affectionate squeeze. See that smile creep across his face in the eventide as his daughter lovingly smooths back his rumpled hair, now seat beside him a loving wife, and he is just as near heaven as he ever expects to be this side of the grave.

And the mother. Is there no way of improving our conduct toward mother? Where's the use of enlarging on the virtues of a mother? The love of a mother is older than the world, because nothing compares with it but the love of God. A thousand debts of gratitude do we owe to mother that never will be paid. But let us improve. We can always speak to mother in tones of love and accents of kindness. Have you done this in the past? Are you doing it at the present? Will you do it in the future? Then again, why not improve in little things? Why throw your coat, hat and boots down in the middle of the room? Why not have a place to put your clothing? At her birthday buy her a present; at Christmas, another. She will not complain if she gets nothing, but you can make her heart leap with joy if she does get something. She will not love you more, for she loves you with her whole soul already, but as she treads softly down the steep descent of life she will bless you time after time as she peeps quietly into your room after you are asleep.

And the children! Ah, what shall we say of the children? Come now, father, and you, mother, sit down here and let us talk just for a moment about the children. Is there any way of improving the relation between us and our children? We love our children. Oh, yes, that no one will doubt, but can we not make an improvement in our manner of showing our love? We love them, but not more than they love us, and if they puzzle their little brains to render life an unalloyed pleasure to us, should we not be as magnanimous toward them? "But my children are my own," gruffly remarks one. Ah, indeed, and do you really own them? You own a farm and a house, a field of wheat, a crib of corn, several head of live stock including five children. Better include a wife, hadn't you? If you own them why don't you sell them the same as any other property?

No, indeed, you do not own them. They belong to God. He loans them to you for a little while, and he will as surely take back his own as he gave them.

When he loaned them to you they were pure. As spotless as the driven snow. In what condition will he find the talents when he comes for them? Will he say: "Well done good and faithful servant," or shall it be, "thou wicked and slothful servant?" Do you know of any way in which you can improve yourself in the eyes of your children? Their whole life is spent in improving themselves in your eyes, now, are you willing to have it said that a child surpassed you in courtesy, in good breeding, in manners? Then you must enter the world of the child who is here by your volition alone. Be it's friend. Be it's adviser. Be it's companion. Never do what you would be ashamed to see it do and you will always do right. Never say what you would be ashamed to hear it say and you will always say right. Never go where you would be ashamed to see it go and you will always go right. Never drink what you would be ashamed to see it drink and you will always go home sober.

Finally, can we not improve in our manner toward our fellow man? As surely as the mirror reflects our every feature so will association reflect our characters.

"Build thee more stately mansions, oh my soul,
While the swift seasons roll,
Leave thy low vaulted past,
Let each new temple, nobler than the last,
Shut thee from heaven, with a dome more vast,
'Till thou at length art free,
Leaving thine outgrown shell by life's unresting sea."

MAN'S DUTY TO DOMESTIC ANIMALS.

BY MRS. W. H. SMITH, MADISON.

[Abstract of a paper read before the Jefferson County Farmers' Institute.]

We read in the inspired volume that in the beginning, "God gave man dominion over the beasts of the field and fowls of the air."

Certain of these animals and fowls have been domesticated, and are necessary to the comfort of humanity. As they contribute so much to our happiness, one would naturally suppose that it would be man's highest pleasure to treat them in a kind and humane manner. Such, however, we know is not always the case.

The horse, the noblest of all animals, is, perhaps, the most fearfully abused. We frequently read of race-horses falling dead on the track, goaded to their death by the cruel lash; but it is only a horse, a loss to be sure, to be regained by the efforts of another poor animal.

Christian people, however, still encourage horse-racing at our fairs, notwithstanding its cruelty and immorality. Men frequently overload their teams, regardless of the condition of the roads, and then boast of the unreasonable loads which they compel their horses to draw. Heavy loads are often drawn by horses whose heads are reined up in an unnatural manner, when the teamster knows that a horse should have free use of his head in pulling. Beautiful carriage horses, otherwise well treated, are often subjected to the cruel over-head check rein.

Dr. Dio Lewis stated some years ago that a tight check rein produced the most excruciating torture, similar to the toothache, and caused, by its pressure, disease of the brain, eye, and spinal column. Often have I looked in pity at beautiful horses, with their heads drawn back, the sun blazing down in their eyes, their mouths foaming, a look of agony in their eyes, while their heads tossed restlessly in the vain attempt to get a moment's release from the torturing strain. Very often, too, women, who should be tender hearted and merciful, were occupants of the carriage. But style must be maintained, at whatever cost of suffering.

During an afternoon in Chicago, I saw thousands of beautiful horses, driven on a fashionable avenue, and was gratified to see that but a small per cent. had the over-check rein. England has abolished the over-check by law.

Cruelty is also inflicted by working horses so many hours in hot weather without water. Men drink frequently of cold water, but the horse must wait till noon or supper time.

In the harvest field horses are often driven from early morning till noon, or later, without water.

A neighbor told in my presence of his horses almost dying in the harvest field from over-heating. I inquired if he watered them between morning and noon. Of couse he did not. I am happy to say that there are farmers who habitually give their horses fresh, cool water four or five times a day in hot weather. It takes a little time, but the horses do better work.

A man can not be a high type of a Christian gentleman and be cruel or indifferent toward his domestic animals. Men frequently excuse their cruelty by attributing it to hired hands. But my observation has been that the employe copies after the employer.

In cold weather horses are driven rapidly, then left exposed in the cold winds perhaps for hours, unprotected.

Said a New Englander to another, "I've got religion." "Have you? Well have you got a shed, yet, at the church to shelter your horse?" "No," said the first speaker. "Well," was the response, "You havn't got it yet. You will have to try again."

How many men habitually thaw the bridle bits in cold weather? How many farmers, professed Christians sit by their warm firesides, and sleep in comfortable beds unmindful of the sufferings of their poor, shivering animals, who are *enjoying* the leeward side of a fence or straw stack.

Public sentiment needs to be aroused on this subject. I am thankful that such men as Bergh and Augell have devoted their lives to such work. Bergh said that in protecting the dumb creatures he was elevating humanity.

All can not afford as comfortable quarters as they desire, perhaps, but all should provide some kind of shelter for all the stock they keep. Young calves in summer should not be tied to a tree or stake, and left to the care of thoughtless children.

Cats, not desired, should not be bagged, and then distributed along the highway, as some cowards do, but should be chloroformed, or put out of the way in some humane way.

The animals in a certain menagerie took such a dislike to a man who had charge of them, that, though he never abused them, he had to be discharged. He never talked to them, and they had been accustomed to kind words. So our animals, especially the horse, appreciate kind words as much as kind treatment, though there are many that never hear any. No, instead of hearing kind words, they are more likely to receive cruel blows.

I am glad that "Black Beauty" is being circulated and read, and I hope that the time will soon come when cruel treatment of animals will not be permitted in any community.

Mothers can do much by teaching their children to be uniformly kind to their pets and all young animals, but their efforts need to be seconded by the fathers.

THE GIRL ON THE FARM.

BY RUA C. MILLER, SHANNONDALE.

[Abstract of a paper read before the Montgomery County Farmers' Institute.]

Page after page is written, and speech after speech made on "How to Keep the Boy on the Farm," but so far as we know the farmer's daughter has never received a thought as to her condition.

This paper was written, not to give advice, but to discover, if possible, her real position. That she is, and ever has been, hampered by most serious disadvantages I shall not for a moment deny. But that she, at the same time, is the fortunate possessor of advantageous conditions I will attempt to show.

Anyone must admit that the country girl has had much in the past with which to contend. She has had to live through years of dark superstition, which, accompanied by the reigning solitude of a new country, seems especially unbearable. She has known dreary years when hideous war forced upon her the double responsibility of bread-maker and bread-winner. She has aided the family in making a pleasant home on the desolate frontier. Her earnest toil has been required to appease the ravenous clamoring of a long-lived mortgage. And one must not think she had no desires above the homely tasks; she has bravely done her part, and to crying ambition she has sung a patient lullaby.

Yet there has always been a sort of freedom about her servitude. Toil does not appear to her in the form of a monster, with a time-piece in one hand and a lash in the other, at the same time grinding with his teeth the threat that if she is not on time she will lose her place. On the contrary, industry is to her a blithesome companion, and together they are accorded unbounded liberty. There is a view, enchanted by the distance of many centuries, that displays the homely gallantry of a farmer and the cheerful service of a maiden. It is a rural scene and the farm is situated in a most historic country. It is harvest time—an important time of year for the anxious husbandman. In a waving mass of barleycorn there is a damsel gleaning. She is, perhaps, trying her apprentice hand, yet she does it so bravely, so patiently, so carefully, that we read with pleasure the command of good Farmer Boaz to his workmen, "Let her glean, even among the sheaves, and reproach her not; and let fall some of the handful of purpose for her and leave them, that she may glean them."

Perhaps the tawny product has been garnered many times by hands as fair; and who can afford to smile at or call ignoble the occupation of one who became the ancestor of the royal family of David? The sculptured image of Maud Muller of the poet's fancy, was an object of interest to thousands at the late World's Fair, but what artist would ever have thought for a moment of thus immortalizing the fashionable lady whom the judge married? These illustrations are given to show that the surroundings of the country girl, though sometimes wearisome, are superbly picturesque. Picturesqueness belongs peculiarly to the country girl. Read "Highland Mary" and see how Robert Burns associates with the personality of his milk-maid sweetheart, the "Bank and braes and streams around the castle of Montgomery"; and one feels something of the enthusiasm of the poet-lover, when he declares—

"There summer first unfolds her robes
And there the longest tarry,
For there I took the last farewell
Of my sweet Highland Mary."

No doubt Highland Mary made a charming picture in quaint Scotch costume, buoyant with health, tripping along with her milking pail. But that was more than a hundred years ago. The girl in the couplet which runs:

"This is the maiden so forlorn,
Who milked the cow with the crumpled horn,"

has our undivided sympathy. No wonder she was forlorn, if she had to milk that crumpled-horned old cow twice daily, every day in the year, including Sunday evening. Not much wonder, either, that she did not feel above receiving the attentions of a man "all tattered and torn." Now, I do not mean that the necessary task of milking should be scorned by the farmer's daughter as a task unworthy her best efforts; but I would not like the Indiana country girl to appoint herself a task which would so seriously reflect on the gallantry of her brother. It was not unfitting that our grandmothers let down the pasture bars for the cows, and did the milking, thus relieving the pioneer, whose days were spent in the most arduous employment. But the country girl of to-day is standing at the bars of a new era, through which comes progress with her interesting train. With improved farm machinery has come facilities that makes possible the development of those talents with which she is richly endowed as our colleges, musical conservatories and like institutions will attest. As she is to-day situated, all things are possible. Her very isolation tends to the development of a self-reliance such as we admire in Ruth, a devotion such as was shown by Evangeline, or a bravery as displayed by Kate Shelley. I have tried to show what her environments have been in the past. Her future seems full of promise. The advice of the American sage, "Hitch your wagon to a star," has been heeded by the American farmer; and he is not only steadily rising, but his daughter is being elevated thereby; and, indeed, it would not be surprising if she were the very first, of all the curious feminine world, to discover if there really is a "man in the moon."

It is to be hoped that the country girl does not exist who does not fully appreciate the good things that are cast with her lot. The best physical development is possible with her. She can enjoy an outing unrestricted by time, and a forbidding sign does not warn her to keep off the grass. It is not my purpose to speak of the birds, the pure air, the unstinted sunlight; for, after all, the chief charm for the girl lies in the home. Her walls are not unadorned if memory can unfurl a scroll that tells of a useful, happy life. Her parlor is not meanly furnished if it is occasionally peopled with bright, congenial companions. Her evenings are not solitary when she can plunge, mind and heart, into the depths of a good book.

There is a sentiment about the old country home that can never pertain to any other home. The country girl may leave it to try her fortunes in a city, as some of them do, and meet with success; but there will be times when she will, with glistening eyes and quivering lips, give to memory the sad rebuke as expressed by Whittier:

> "Clasp, Angel of the backward look,
> And folded wings of ashen gray
> And voice of echoes far away
> The brazen covers of thy book."

HOW I TRIED TO WIN A SCHOLARSHIP IN PURDUE UNIVERSITY.

BY L. W. THOMAS, PENDLETON.

[Abstract of a paper read before the Madison County Farmers' Institute.]

In 1893 I tried to make one acre produce seventy bushels of corn and thus win a prize scholarship in Purdue University. I kept an account of the cost of production, charging at the rate of $3 a day for the team and hand.

As that acre was cultivated just the same as the rest of the land, I will give the cost of the whole. The field contains twenty-two and one-half acres of black and clay land, which is well drained. The three previous crops were: 1891, wheat; 1892, clover; 1893, corn.

In 1892 and 1893 it was fertilized with 150 loads of manure, valued at $1 per load; one-third of which I charged to the corn crop.

The 27th of March we began to plow with the Big Injun riding plow. May 4th we started to harrow with a common iron harrow. The 6th of May it was marked out with a sled marker.

It was planted the 8th and 10th of May, with a two-horse planter, using four bushels of yellow corn. It was then cultivated and harrowed once before it came up. During the summer it was cultivated five times.

The cost of producing the crop was as follows:

Manure (one-third charged to the corn crop)	$50 00
Plowing	37 75
Harrowing	5 50
Marking out	2 75
Planting	5 00
Cultivating (before crop came up)	9 00
Harrowing (before crop came up)	4 50
Cultivating (after the corn was up)	42 00
Cutting corn	26 80
Husking corn	48 50
Hauling in fodder	8 50
Hauling in corn	13 00
Rent of land valued at $75 per acre, at 6 per cent. interest	101 25
Four bushels of seed corn	4 00
Bands for tying fodder	2 00
Total cost	$360 55

RECEIPTS.

Good corn, 900 bushels at thirty-five cents	$315 00
Value of fodder in mow	100 00
Total receipts	$415 00
Cost of production	360 55
Profit	$54 45

The corn was not sold, but fed to hogs and other stock, and I believe a greater profit was realized.

The fore part of the season was very wet, and later quite dry, consequently it was not a fair test.

HOW I WON A SCHOLARSHIP IN PURDUE UNIVERSITY.

BY O. M. HADLEY, DANVILLE.

[Read before the Tippecanoe County Farmers' Institute.]

I first heard of Purdue about four years ago this winter, and as I learned more and more of the institution and its work the more I wished to attend this place of learning.

The agricultural school, in particular, presented many allurements, but owing to existing circumstances I did not have the privilege of entering until last fall.

Last spring, at the close of my school, I was offered another good position for this winter, but refused the offer in order to attend Purdue. A number of people in the community thought there was something wrong with my head, and hooted at the very idea of any one going to college to study "farmin'." They call me the scientific farmer already. I reply that I am not striving to become a scientific farmer, but an intelligent farmer, and certainly this is the class of men the country is in need of just now, if it ever was.

My attention was first called to the matter of prize scholarships early last spring by reading a few articles and announcements on the subject which appeared in the "Indiana Farmer." I was most favorably impressed at the very first reading of the articles, and was not long in making up my mind to secure, if possible, one of these scholarships.

I decided to work on two different lines, so that if I failed in one case I might be able to succeed in the other. I worked for the seventy-five bushels of potatoes to the quarter acre in one case, and for the 25 per cent. net gain on an investment in poultry in the other.

It was well that I took this precaution, for before the summer was over the potato crop was ruined by the drouth, but my poultry kept on growing.

The following explanations will give an idea of how I succeeded so well with the poultry. I bought 300 chicks of a poultry breeder, paying him five cents apiece for them as soon as they were hatched and ready to take from the incubator. This made my original investment cost $15.

The chicks were reared in good, warm brooders, the use of which cost me $2. The first two weeks they were fed the yolks of hard boiled eggs, milk and oat meal, and a little later boiled potatoes and cracked wheat and corn were added, also a little sand and powdered charcoal were given to aid digestion. The meals were made into a kind of coarse bread, no salt being used, and were fed with milk while yet warm.

The chicks grew rapidly under this treatment, and in about six weeks were ready to be removed from the brooders into roomier quarters.

Up to this time only about twenty had died, and most of these were weak when hatched. After leaving the brooders and small runs the chicks had ample ground for foraging, but were still fed some whole corn and wheat each day.

The chickens were kept till they weighed one and one-half to two pounds each, then I began to market them. The first 100 sold at twelve and one-half cents per pound, but before I got the remainder off there came a fearful tumble in prices, and I got but seven and one-half cents per pound for them. Notwithstanding low prices, I found on squaring my accounts that I had made a handsome profit. The account stood as follows:

Original cost of chicks	$15 00
Use of brooders	2 00
Cost of food	8 00
Cost of labor	8 00
Total expense	$33 00
Total receipts from sales	$47 00
Expenses	33 00
Net gain	$14 00

Over 42 per cent. on the investment.

I do not give this account because there is anything remarkable about it, but simply to show what might be accomplished in a similar degree by any farmer's boys or girls, if they would only put forth a little effort. I believe now that I could handle another batch of 300 chicks and make 100 per cent. profit off of them as easily as I made the 42 per cent. last year, simply by providing them with better shelter in times of dashing thunder storms and by growing them for an earlier market.

In what little experience I have already had in the poultry business, I find that it is the careful attention to details that insures success, and I believe this rule will hold good in respect to any other business.

FREE DELIVERY OF MAIL IN THE RURAL DISTRICTS.

BY MILTON TRUSLER, BENTLEY.

[Abstract of a paper read at several Farmers' Institutes.]

This is a subject that has of late attracted considerable attention. It is a question that should be agitated by the American farmer until equity and justice are meted out to all alike as regards the free delivery of mail.

The age in which we live is an age of wonderful push and progress. Steam, the telegraph and the telephone have revolutionized the manner of doing business within the last three-quarters of a century, and for various reasons the people on the farm and in small towns and villages have hardly kept pace with their city cousins in the use of all that makes the difference between the old and the new.

There can be no good reason why the Government should make a distinction in favor of those whose advantages are already far superior for mail facilities. As the postoffice is now brought to the door of the families of large cities, so let it be to the humblest citizen in the rural districts, thereby adding to his comfort and convenience, enhancing the value of his lands and business of whatsoever kind, thus putting the country people in touch with the great interests of the day.

Give the farm and small towns free mail delivery; this would lift a great embargo from life and business, so the farmer can enter upon that freedom of communication he so much stands in need of, that is already given to the citizen of the large towns composed of ten thousand inhabitants and upwards. With free mail delivery we would have less complaint among those engaged in farming, and the boys and girls would be better satisfied with their calling in life, and more willing to remain upon the old homestead. There certainly can be no economy, individually or collectively, in twenty families of a neighborhood acting as mail-carriers. when one could do the work for all. Thousands and tens of thousands of daily newspapers would be taken and read in addition to what are now taken, could free mail delivery be put in operation, thereby many times saving pecuniary loss by being informed of the daily markets of the world. Other countries have for many years been delivering the mail directly to the door of the farmer. In England and some other European countries the mail is delivered to the rural districts as well as the large towns and cities, while in free America, the wealthiest and best government on earth, it is confined to cities composed of not less than ten thousand inhabitants, and towns doing a postoffice business amounting to six thousand dollars, thus discriminating against that class who have created the majority of the wealth of the nation and made it possible for the people of the large towns to have their mail brought to their homes.

Our government proclaims that all citizens shall be equal before the law. This being the fact every person that is taxed to carry on any branch of business for the government should receive the same benefit as others. While the farmer pays the great majority of the taxes for carrying the mail, he seems to be discriminated against, or receives less benefits than the individual who is fortunate enough to live in a city composed of ten thousand inhabitants who, under the present law, has his mail brought right to the door and boxes convenient by him in which he can deposit letters and papers going away. What justice can there be in a government of the people, by the people and for the people, to carry the mail of one to his door and leave that of the other miles away, simply because he lives in the country or in a small village. If a distinction must be made it should be in favor of the country, since the people thereof must waste more time in going for their mail than those who live in large cities.

If free delivery of mail is good for the large towns it certainly would be good for the small towns and especially the country. If a man in business living in a large town can't afford to walk a square for his mail, how can a man engaged in the business of farming go three or four miles after his, for we understand that farming is a business of far more importance than that of any other, as it underlies all others and is the grand moving power by which the machinery of this government is put in motion and successfully carried on?

Let us have free mail delivery to all as long as it is the policy of the government to give it to a part of its citizens. First, because it would bring the producer into close relation with the consumer. Second, it will benefit the consumer, enabling him to send direct for anything needed upon the farm. Third, farmers should have equal rights with the city people when they pay for them. Fourth, because it is just, and justice wrongs no man. There can be no argument in favor of delivering mail free to those who reside in cities and villages which does not apply with far greater force to the extension of the system in the country. We believe an intelligent reading people to be the sure foundation of a permanent republic, and we are firmly of the opinion that the free delivery of mail to the rural population will encourage them to take more daily papers; to read, study and think more, thus qualifying them to meet and discharge the great responsible duties of American citizens.

*RECREATION ON THE FARM.

BY MRS. SARAH E. QUIGLEY, PARADISE.

[Paper read before the Warrick County Farmers' Institute.]

And God saw everything that He had made and behold it was very good.—Gen. i, 31.

God made this beautiful world for us, and made us capable of appreciating and enjoying its beauty. There is an incident related of an aged French priest, who dreamed one night that he was in the presence of God, and that God spoke to him these words: "My child, how did you like the beautiful world I gave you to dwell in?" and he answered nothing; he was too much mortified to answer. "For," said he, "think of it, I, who had preached for fifty years of a better world, had never examined this one at all." So when he awoke from his dream, he made a vow to God that he would spend some months at least in travel, seeing and admired His works. We may not all be able to travel around the world, but we can avail ourselves of the beauties within our reach. We have here in southern Indiana a varied landscape; hill and dale, forest and prairie, running streams, and a grand river, third only in size and importance of all the rivers in our great country. I have been in different sections of our country, east, west and north, but I have never seen a greater variety or more lovely wild flowers than can be found right here. From March to November the fields and roadsides are gay with them. Even our rough rail fences are made a thing of beauty, with the gorgeous trumpet creeper, the scarlet and orange bitter sweet, and the delicate, feathery capsules of the wild clematis. The green vines cling gracefully around the bare, brown trees that have been deadened and left standing, pathetic monuments of man's destructiveness; and in winter, when the leaves have fallen from the trees, the mistletoe, renowned in song and romance, with its dark green leaves and silver berries, clothes the branches with new beauty.

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*This and the following paper were received too late to be inserted under the appropriate general headings.

Let us not be too busy with our farming and housekeeping to see and enjoy these beauties of nature. Our necessary work must be done. There is the plowing and sowing, the cultivating and reaping, and in-doors the washing and ironing, the sweeping and most necessary of all, the cooking—for, as Mark Twain in his article entitled "Woman Her Own Taskmistress," says. with his own inimitable humor, "So long as a great many people will eat (and it is a habit that has been strengthened and developed through so many generations that I doubt if any treatment in the world can overcome it), so long some people must cook." But I think the kitchen, though important and indispensable, occupies too much of our time and thought.

If our friends are coming to visit us we must spend our time and strength in getting up an elaborate dinner, and then are so nervous and worried for fear something will be overdone or underdone, or that there will be a failure somewhere, that we can not enjoy their society, although we have looked forward to their coming with much pleasure. I read recently an article on excessive housekeeping, and these words impressed me as being so near the truth that I have quoted them here. "What we want in our homes is a much simpler style of housekeeping, and we shall have it when we learn the great lesson to live more for comfort than for ostentation, to live less for show and more for substance. We live too much for others, too much for the world. We fix up our homes altogether too much with the idea of either what the outside world may say of them, or to outdo our neighbor. It is all well enough to have pretty homes, with rooms filled with dainty bric-a-brac, mirrors, cushions, ornaments of every sort, but some one must take care of all these things, and generally it is not the help that we employ. And so far as ornamentation of our rooms is concerned, in many cases we overdo the matter. Some of our rooms resemble museums more than anything else, and a man is never so comfortable as when he is out of them. Between kicking something over or knocking something off, or pulling something down, the average man's mind is anything but a tranquil one in one of our typical modern parlors."

Let us not wear ourselves out and get worried and nervous over excessive housekeeping, but dismiss unnecessary cares and take time for rest and recreation in nature and in books. We need the blessed sunshine that God has given us so freely to keep our souls fresh amid the petty trials and vexations of our daily life. It is related of Thomas Chalmers, that in the darkest hours of the history of the Free Church of Scotland, when the woes of the land seemed to weigh upon his heart, he would say to his children, "come, let us go out and play ball, or fly kite," and the only difficulty in the play was the children could not keep up with their father.

Our farmers, as well as their wives, need more recreation. A young, hard-working farmer said to me last fall: "I wanted, and intended to get a day or two off to go nutting and hunting, but there is so much work to do I shall have to give it up." And I said to him, if I wanted a day or two for recreation I would take it, and hire a man to help with the work to make up for lost time. You may be a dollar or two poorer in purse, but many times richer in mind and body. We have but one life to live on this earth, and why should we deny ourselves all these God given pleasures, and why let the dollars assume such proportions as to overshadow everything else in the mind's eye? We can take no *money* out of this world, but by cultivating and expanding mind, soul and body, we fit ourselves for greater enjoyment when this short life merges into the eternal. When the days grow short and cold, and the wintry storms are abroad, we have always our books and papers with which to rest, entertain and improve ourselves. Now is the time for reading circles and social intercourse, for interchange of experiences and consideration of new methods. And let us not forget the children of the family. I think they deserve more thought and attention than most of them receive. Cultivate in them early a taste for good books, and give them an education that will fit them for any station in life. A right education will not make our boys and girls less willing to work, but more intelligent workers. And right here I want to put in a plea for better schools in the country. I know it is a digression from my subject, but you will pardon me for I feel that our boys and girls have not the opportunities which they deserve for becoming intelligent and enlightened citizens of this free country.

I know but little of the city schools, but as far as my observation goes our country schools fall far short of what they should be. The country is calling today for educated men, who can act intelligently on the great questions that engross the law-making bodies, and who can act so intelligently on the subject of taxation and the development of the industries of our country, as our thoroughly educated farmer boys? But in how many of our schools are those branches taught that will fit them for that position. Is the science of civil government taught at all, and, may I ask, do the majority of the teachers themselves understand what it is within the province of the government to do and what not to do? We need teachers who will educate and cultivate the moral as well as the intellectual qualities of our children. Teachers who are themselves master minds, who can control and guide the pupil, and while teaching them reading, writing and arithmetic are at the same time training and fitting them for future usefulness. A writer in the "Western Rural" says: "It is to our thrifty, sunburned farmer boys that we must look for our Washingtons and Gladstones; the manly, clear-brained boys from the district schools of our land. Give them an education which will develop them symmetrically. He is worthy of it who has—

"His own free, bookless lore,
The lessons nature taught him,
The wisdom which the woods and hills
And toiling man have brought him."

But though our farmer boys may be sought after and are successful in other walks of life there are also avenues of success open to them on the farm. Don't feel that you can never become great or influential unless you leave the farm and take up some other vocation, for it is not true. One of our dailies, in giving people advice about going to Chicago during the Exposition, said, "Above all things, don't wear a badge; they will be sure to know that you are from the country." As if it were a disgrace to be known to be from the country. Why, we who are farmers have a right to be, and if we use our privileges aright may be the most intelligent, the most influential, and withal the happiest class of people in the country. Then let us work—"Stagnant waters breathe a poison"—but not as slaves to toil and drudgery to gain a few more dollars to hoard in bank vaults, or to make a display before our less fortunate neighbors, but with the freedom and cheerfulness of one who feels himself master of the situation and with a determination to make the highest and best use of all this world's resources in preparation for that infinitely higher and better life beyond.

WHAT SHALL WE DO WITH OUR CORN FODDER?

BY H. F. M'MAHAN, FAIRFIELD.

[Read at the Rush County Farmers' Institute.]

In the last few years widespread discontent has grown up among farmers and thousands have exchanged a quiet farm life for a more precarious living in towns and cities.

All sorts of reasons are assigned: the young man is tired of the dull routine of farm life; the work soils his hands and clothes; the hours of labor are long and recreation time is short. The girls say there is no society and would, without a sigh of regret, exchange the roomy old farm house for an eight by ten rented cottage, if it stands inside a corporation line. The wives and mothers say—and not without good reasons, sometimes—that they are drudges.

But by far the most prolific cause of discontent is a belief that the profits of farming are meager compared with profits in other professions; and the fact that a few merchants, lawyers, manufacturers and speculators have amassed princely fortunes in a few years, while no man has become a millionaire by farming, has given some color to their discontent.

But the truth of the matter is that the energy, business methods and capital that makes a successful merchant or manufacturer would make a successful farmer. The enterprising farmer is no better satisfied with *meager* profits than his discontented neighbor, but instead of giving up in disgust he goes to work to win, believing, with Franklin, that he who has patience can have what he will.

The progressive farmer each year adopts some new plan or process. The Department of Agriculture tells him how to spray his vines and fruit trees—as a result he sells more apples, peaches, plums and grapes each year than his less progressive neighbor raises in three. He has been reading farm papers; and while they may not be authority on the probable effect of the Wilson bill, he has learned to feed a balanced ration to his Shorthorn steers and Jersey cows and sells twice as much beef and butter as Jones, who says farming don't pay.

In some way he finds out that one-half to three-fourths of the value of manure is lost by fire-fang and leaching, and he makes the necessary arrangements to save it. An experiment station bulletin teaches him that smut of wheat and oats can be prevented, and the next year he increases the yield of these crops ten bushels per acre. Even his chickens have quit roosting in trees and their carefully collected droppings go to enrich some poor spot on the farm.

But what of his neighbor who farms with his hands and not his head? He often keeps his boys and girls out of school to avoid hiring help. His wife does the work of two or three, he and his family wear cheap, coarse clothes, and all the while through carelessness and moon-farming, he is losing more each year than with all his economy he can save.

Competition in all professions is each year making profits smaller and smaller; and with farmers the combined ravages of drouths, floods and insects lessen still more the chances of success; but science, inventions, intelligent industry, and economy are more than a match for them all.

At no time in the history of agriculture, when prices have been normal, have the profits of careful intelligent farming compared so favorably with the profits of other professions as at present.

One reason so many men are failing as farmers is that they have been living at a 2:40 rate on an income that is not half so fast. While the profits of farming are reasonably sure, it is only by the closest attention to details that they can be made large.

One of the factors which often bring success in business is the utilization of by-products. In the manufacture of steel, the slag makes a valuable fertilizer Fifty years ago cottonseed was a waste product; to-day every part of the seed is utilized, the seed being almost as valuable as the lint. The oil is a valuable article of commerce, and cottonseed meal is the best cattle food in the world.

Years ago butchers could only sell the beef, hides and tallow; now the horns and hoofs go to the glue factory, the bones to the sugar refinery, the hair to the builder, the blood is saved for its nitrogen, and the remainder, of what was once waste, to the soap factory and fertilizer establishment. Because he makes the most of the waste or by-products, Armour can bring beef to your door for less than your local butcher can put it on the block.

If we are to make a success of farming, we must, as far as possible, utilize what have been heretofore called waste products.

The chances are that the majority of farmers could keep twice as many cattle, sheep and horses and not buy more of roughness than they do now, raise just as much grain as now, and in a few years, more from more fertile fields.

Last year, according to our State Statistician, there was grown in Indiana one hundred and eleven million bushels of corn, valued at sixty-four million dollars. Now if the statements of science and reports of experiment stations are to be relied upon, and I know of no better authority, this one hundred and eleven million bushels of corn represented but one-half, or a little more, of the total food elements of the whole crop. In other words, the farmer who cribbed one thousand bushels of corn secured but little more than 50 per cent. of the total value of the crop he raised. The stover, or fodder, as most of us call it, is as yet a by-product. What shall we do with it? Are we to allow this enormous amount of food to go to waste and then complain that farming does not pay?

Oh, but, says some one, it is not wasted; we pasture our stalk fields. I admit most of us do. The careful farmer only pastures his stalks when the ground is frozen, or the wheat is covered with snow. He turns his stock out of comfortable quarters to freeze and founder if he has left any corn in the field, or freeze and starve if he has left none. There is little food left in the blades and the remainder of the stalk is so unpalatable it will be eaten but sparingly. I think it safe to say he secures less than a hundredth part of this by-product. The careless farmer gets a little more of the corn he left by tramping the life out of his field in all kinds of weather. Another man who cuts up a hundred shocks or so, to keep a hired hand husking it out on cold wet days, claims that much of the corn is cut up. Possibly a fiftieth of the whole crop, and too often a part of this small fraction is allowed to stand in the field until it is unfit for use.

But another, more practical than the others, wants to know where forty or fifty acres of corn fodder could be stored. If he has been cutting ten, twenty, forty or fifty acres of hay each year what has he been doing with it?

Why, he built a barn to put it in and he will find, if he tries, that he can put ten, fifteen or twenty acres of corn fodder where he put ten of timothy hay. Or if he still wishes to put up the hay, the fodder can be stacked, or he can do as he did for the hay, build a barn and put it in.

But the stock not eating it, has, no doubt, been the experience of some men who know the value of corn stover. The amount wasted varies with the variety of corn and manner of feeding. Fed long, in racks, when great care has been taken to cure and house it properly, it is probable that five to thirty per cent. will be wasted with small and medium varieties and as much as fifty per cent. with large, rank growing varieties.

But when allowed to stand in the shock until February, as it often does, then fed long on the ground its value as a feeding stuff is small indeed.

Mark you, these not the results when fed properly. My own experience, and the experience of others who have tried the experiment is that when the stalks are crushed or split and cut into half inch lengths, or less, that it is all eaten. In the last two months I have fed several acres of stover to cattle and horses and not twenty-five pounds has been wasted.

In an experiment conducted at the Maryland station a few months ago, to learn the total amount of digestible matter in corn stover and the comparative amounts in different parts of the plant, it was found that in an acre of corn there were 1,530 pounds of digestible matter in the ears, and 1,642 pounds in the stalks.

According to the figures given, there is in an ordinary corn crop an amount of food in the fodder alone, equal to that in two tons of timothy or clover hay. The table showing the food value of the different parts of the stalk was a surprise to me.

The blades contained but one ninth of the total digestible matter in the whole plant, while the husk and stalk below the ear contained sixty per cent.

As fodder is ordinarily fed, this sixty per cent. is wholly lost. Steers fed on the stalk alone, without the husk, top, blades or any grain, after the first week maintained their weight.

At the Vermont station it was found that tops and butts have equal feeding value, and that both are better than hay.

As a substitute for hay, fodder lowers the cost of milk production one-fourth to one-half, and even stover, pound for pound, produces more milk than the best of hay.

When we remember the market price of hay and the comparatively small cost of securing corn stover, it is certainly of the greatest importance that corn stover be saved as carefully as any other crop.

Referring again to the statistical report of 1892, we find there were cut in Indiana in that year three and one-half million tons of timothy and clover hay valued at thirty-three million dollars. The same year there was grown six or seven million tons of cornfodder with a feeding value equal to twice or three times the value of all the clover and timothy put together. One-half or two-thirds of this amount would have fed every horse, cow and sheep in the State through the six winter months, leaving an enormous surplus of hay and fodder which might have been profitably fed to increased herds.

Here in Rush County, you raised last year about 60,000 acres of corn and some 34,000 acres of hay, clover and timothy. From your meadows you cut 40,000 tons of hay, but saved a very small part of a fodder crop large enough to have wintered all the live stock in the county.

In the older States all the corn fodder, hay, straw and even bean and pea vines are taken to the barn and fed out. By this plan enormous quantities of manure are produced, returned to the fields and scattered where it is most needed.

As a result, the Eastern States, after being under cultivation two hundred years—and a soil not nearly so fertile—produce more corn per acre than any State in the Mississippi Valley.

Last year the corn fields of Vermont produced 40 bushels of corn per acre. Those of Massachusetts 39 bushels, and New Hampshire 38 bushels per acre, while Indiana produced less than thirty bushels, and Iowa, the first State in the Union in the production of corn, produced but 28 bushels per acre.

I can not say how much is due to better cultivation, nor do I say it is all due to saving the fodder, but I do believe that it is very largely due to large herds and greater care in saving all the coarse fodder produced on the farm. The fact is we are selling too much corn, wheat and hay, and not enough live stock.

It has been estimated that in a ton of timothy hay there is $5 worth of manure. In a ton of clover hay there is a manurial value of $9. In a ton of wheat nearly eight dollars worth, and oats nearly the same, and corn only a dollar less. We must not forget that when we sell a ton of corn, wheat or hay, we are selling several dollars worth of material which we must buy back in the shape of commercial fertilizers if we are to maintain the fertility of our soil. This is in a measure true when we sell live stock, though to a very small extent. According to the Cornell Station, New York, each year a horse lives on a farm he returns to the farm manure to the value of $20 or more. A cow returns $25 or $30, while each sheep (depending upon the kind of feed), returns $5. Besides the increased price received per ton and per bushel by feeding on the farm, there is a direct return in manure with a number of feeding stuffs equal to their full market value.

The reason assigned by many farmers for selling grain is they can not raise coarse fodder enough to keep more stock. If they will save all the roughness that grows on the farm each year they will find it necessary to buy grain oftener than fodder, and very often a careful feeder will find it profitable to buy both.

The time of harvesting has very much to do with the value of the whole crop. Cut too soon there is a very serious loss in grain amounting sometimes to nearly half the crop. Experiments have shown that the dry matter increases very rapidly in both ear and stalk as the corn approaches maturity. At the Kansas Station corn cut in the milk stage yielded 35½ bushels per acre, and 2.4 tons of stover. Cut in the dough stage it yielded 57 bushels, and when ripe 74 bushels of grain and 2.7 tons of stover.

The experience of the stations has been that the loss of corn is least, and the fodder in the best condition for cutting after the corn has glazed, or dented. A machine for cutting the fodder must be light and strong, cut rapidly, and be constructed at a reasonable cost or the majority of farmers can not buy them. So far as I am acquainted with the machines on the market, the cheaper ones, the sleds or trucks with lateral knives only cut off the stalks, the driver having to stop and carry each bunch to the shock. The more expensive machines only being able to cut faster and tie in bundles.

If you will not think I am trying to advertise myself, I would like to describe hastily a plan of my own which I believe will be of some value in saving corn fodder. A platform three or four feet mounted on low wheels with a hinged knife on either side, set at acute angles with the two rows to be cut, similar to the Buckeye fodder cutter, curved arms three feet above the knives to support the stalks as they are cut down and drawn to the back part of the platform.

When a shock has been secured, by a simple device the platform on which the stalks rest can be lowered, much as the droppers of the old reaping machines. By raising the knives at the proper moment the shock can be left standing with two or three stalks on either side which, when securely tied with the shock, puts the corn in the best possible condition to withstand wind and rain. I believe it will be possible for one man to cut several acres in a day and cut it easier than he can cut one acre with a knife.

Most of us make our shocks too large. Twenty-five hills of heavy corn are enough, and fewer would be better, for everything depends upon getting the fodder under cover at the earliest possible moment. With the best care possible, a fifth of the dry matter is sometimes lost, and what must the loss be when it has been washed by half the winter rains?

As soon as the corn will do to crib, if a husker can be secured that will crush the stalks and cut them into half-inch lengths or less, both can soon be put under cover and in a condition that horses, sheep and cattle will eat it all.

When huskers come into general use the labor and expense will be greatly lessened, and I believe a much larger portion of the fodder crop will be utilized. If a husker can not be secured, the next best thing, and just as good only a little slower, is to husk out the corn by hand and with a small horsepower, a Tornado feed cutter and an elevator can be put in small space very rapidly.

The value of reducing the stover to a very fine state can not be overestimated, for while the stalk below the ear contains a large part of the total food elements, it is locked in a case so hard and tasteless that unless it is broken into very small pieces the stock will not eat it.

Two years ago our Experiment Station, at Lafayette, found that in feeding two lots of steers there was a gain of fifty per cent. by putting the clover hay through a feed cutter. How much more the gain would be in feeding corn fodder.

It may be urged that in taking everything away from the fields there is a loss of fertilizing materials in the stalks. I can not quote any authority, but I know there must be very little after six months of alternate soaking and drying by rain and wind.

More than that, thousands of farmers burn every stalk before plowing, thus losing almost the last particle of fertilizing material.

I have not mentioned silos, silage or corn planted for fodder only, partly because it would make the paper too long, but more because I wished to emphasize the fact that we can and should grow more live stock, and that by so doing we can enrich our farms and swell our bank account at the same time.

With the corn plant the possibilities of an acre are wonderful. No plant in the temperate zone is its equal. It is adapted to almost any soil and a wide latitude, easily cultivated, quickly matured, comparatively few enemies, almost a perfect food for all live stock.

If the farmer's land is an Aladdin's lamp to him corn is the genii.

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